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ENVIRONMENTAL PROTECTION THROUGH PUBLIC AND PRIVATE DEVELOPMENT CONTROLS

A. L. Strong, et al

Pennsylvania University
Philadelphia, Pennsylvania

May 1973

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The research conclusion is that greater use of large-scale public and private control of land development can not only contribute significantly to water resource protection but will also increase private benefits. ~~We predict~~ increasing use of these forms of controls is predicted despite a substantial amount of opposition from private landowners. (EPA)

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By

Ann L. Strong and John C. Keene
The University of Pennsylvania
Philadelphia, Pennsylvania 19174

Project 16110EDC

Project Officer

Edward V. Geismar
Region III
Environmental Protection Agency
Philadelphia, Pennsylvania 19106

Prepared for
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ABSTRACT

The studies described herein are an integral part of a much larger study of land management for purposes of water resource protection. The larger study is popularly known as the "Brandywine Project."

The EPA-supported research is classified into three principal categories: (1) research directly related to the Brandywine Project; (2) investigation of public regulatory and less than fee controls on development; and (3) shaping of the concept of a private development corporation. The research approach is predominantly legal and governmental. In all instances in which information is available, citizen response to the various development controls has been examined and is included in the research reports.

The research conclusion is that greater use of large-scale public and private control of land development can not only contribute significantly to water resource protection but will also increase private benefits. We predict increasing use of these forms of controls despite a substantial amount of opposition from private landowners.

This report was submitted in fulfillment of Project 16110 EDC, under the sponsorship of the Office of Research and Monitoring, Environmental Protection Agency.

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SECTION I

CONCLUSIONS

1. The relationships between land use and environmental quality, including water quality, are not well understood, either by professionals or the public at large.

2. The Brandywine project made a significant scientific contribution in this respect but, because the Plan was not carried out, proof for many of the hydrologic hypotheses was not forthcoming.

3. The economics of land management techniques for water resource protection have been explored theoretically. As with hydrology, field demonstrations are lacking to prove or disprove the theories.

4. Zoning and other municipal regulatory controls are totally inadequate to the task of controlling land use so as to protect water resources. They can have a role but only a minor role in this task.

5. Until people understand the environmental and economic consequences of current modes of development, they are not going to accept more stringent public controls. During the past five years there has been the dawning of such understanding, but much greater public education is needed before we can look to a widespread change in attitudes toward land use control.

6. Major land use decisions should no longer be made by local governments. The interests reflected at the local level are necessarily parochial and short-lived. A regional constituency must be represented.

SECTION II

RECOMMENDATIONS

The legal proposals of the Brandywine Plan are sound and warrant experimental use. Many variants of them are now being tested piecemeal, but there is no unified demonstration which will yield quick and scientifically valid results. There were two flaws in the Brandywine project: the time was a few years too soon and the level of government relied upon to act was too low. Increased consciousness, in government and among the public, of the environmental degradation brought about by improperly planned land use makes the climate much more propitious today than in 1966-1968. Matched with a series of court decisions rejecting stringent land use regulation unaccompanied by compensation, the time seems ripe for a new demonstration effort, sponsored by a forceful public agency exercising powers at the regional level.

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SECTION III

INTRODUCTION

The Brandywine Plan was an ambitious effort to develop a politically acceptable way of protecting the water resources of an urbanizing area while still providing for a normal amount of growth. An essential part of the Plan was that it be carried out, to demonstrate the validity of its underlying concepts.

The Plan succeeded in many ways, probably most significantly in establishing a sound hydrologic base for urban land use planning, but it failed to win acceptance by the people of the Brandywine watershed. Therefore, it was not carried out.

Development of the Plan began in 1966 and continued until mid-1968, when the Plan was rejected. The EPA supported research began in January of 1968, as part of Brandywine planning, and continued through 1971, when we returned to the Brandywine to talk to people about the Plan and its impact.

Brandywine planners started with, and still hold to, the belief that it is possible to create a place for people to live at moderate densities without destroying the beauty and health of the natural environment. We chose water as the principal indicator of the character of the natural environment and sought to prove five related assumptions:

(1) through careful planning a normal amount of urbanization can occur without damaging the water resources of a watershed;

(2) the land use pattern produced by such planning appeals to people more than conventional development;

(3) in a totaling up of the costs and benefits--hydrologic, environmental, social, and economic--of this land use pattern and matching them against the costs and benefits of conventional development, the Brandywine Plan would

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win by a significant margin;

(4) legally valid ways can be found to turn these planning principles into land use realities; and

(5) political acceptance can be won for both the planning principles and a program for their implementation.

It is the last two of these assumptions which we investigated with EPA support and to which this report is directed. Since this work also had many other aspects not discussed here, the reader is referred to the list of publications for additional information.

PART A. BRANDYWINE RELATED RESEARCH

Support from EPA was received starting in January 1968. At this point, two-thirds of the time for preparation of the Brandywine Plan had elapsed. Therefore, the initial activities under the grant were in support of planning work already underway, including preparation of the final Plan report and a movie. Later, after the Plan was rejected by six of the eight affected municipalities, the direction of work was altered to an evaluation of the reasons for the rejection. In part this consisted of two series of field interviews with people in the Brandywine; in part, two planning staff principals thought and wrote about the experience.

Sections IV and V in Part A provide an overview of the Brandywine research. Section IV presents a brief summary of the recommendations of the Plan and Program for the Brandywine and their underlying technical rationale. Section V summarizes the results of two interviews of a sample of area households, one interview pre-Plan, and the other after its rejection. These interviews sought to elicit the views and attitudes of the Brandywine area residents concerning the environmental effects of converting agricultural and undeveloped land adjacent to the Brandywine basin's streams to urban uses, and their attitudes toward what constituted "proper" or legitimate governmental action to achieve the objectives set forth in the Plan.

SECTION IV

THE BRANDYWINE PLAN AND PROGRAM

The Upper East Branch of the Brandywine, its water resources and present development, the desires of its people for the future use of the land, and the impact of future urban development on its natural characteristics were intensively studied by consultants to the Chester County Water Resources Authority. The purpose of these studies was to determine whether the inevitable urban development of the Upper East Branch watershed could be accomplished with the minimum of damage and disruption to the water, scenic, and other natural resources of the area which were of value to the people. The Brandywine Plan, a popular, liberally illustrated report published in April 1968, and The Plan and Program for the Brandywine, the technical report published in October 1968, were the results of that study.

Introduction

During the winter and spring of 1968, much of the planning work was directed to development of legal alternatives for land use control and implementation of the Plan's recommendations. Basically the Plan called for retaining in open space all land within the 50-year flood plain and within a 600-foot wide stream corridor. Further, it specified that forested lands and slopes of 15 percent or more be limited to development at a gross density not in excess of one dwelling unit for every four acres. Obviously these limitations on development were too stringent to impose through zoning alone. Land use controls which would compensate the landowner for lost development value were essential.

In this regard, research was directed toward several activities: (1) drafting of state enabling legislation (enacted during the course of the Brandywine project) to authorize the state and counties to purchase rights in land so as to control the development of the land and to use the power of eminent domain; (2) drafting of state

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enabling legislation (also enacted) to assure real property tax assessment based on the open space value of land restricted to farming, forestry, water resource protection or similar uses; (3) developing six alternative legal approaches by which a public agency, here the county, could limit or prevent development of land critical to water resource protection while providing compensation to landowners; (4) meeting with lawyers, planners, local government officials, and citizen groups to discuss these alternatives and solicit their response; (5) sponsoring public meetings at which people experienced in use of various of these land use controls discussed their advantages and disadvantages; and (6) after choice of a specific approach for the Brandywine, drafting of a conservation easement and writing the explanatory text of the Plan.

The Recommendations of the Plan

The Brandywine Plan recommended three basic proposals which were to be the organizing principles for further action. These recommendations were:

1. Further development should be kept out of flood plains and three hundred foot wide strips on each side of streams and their natural drainage network. Development should be limited in wooded areas and on steep slopes.

2. The townships in the Upper East Branch should begin now to do long range planning for the design, financing, and construction of sewerage and water supply systems so that action can be taken quickly when future population growth makes these facilities necessary.

3. The townships should enact strong regulations governing the lay-out and construction of subdivisions, roads, and storm sewers, and the control of erosion during construction.

Upon the acceptance of these recommendations by the townships of the Upper East Branch and the Chester County Commissioners, the following action program was proposed:

1. A Water Resources Protection District for the Upper East Branch should be established as the basic element in a general plan for the watershed. This District would include those lands critical to the protection of the stream and its valley as outlined in the first recommendation. The District was intended to become a basic element in further comprehensive planning efforts at the township and county levels.

2. Conservation easements should be purchased from owners of land in the Water Resources Protection District who agreed voluntarily to sell such easements which would restrict future development of their land. In order to maintain the integrity and effectiveness of the Plan, easement purchases would have been made only in sub-basins of the watershed where owners of at least 80 percent of the Water Resources Protection District lands agreed voluntarily to the sale of easements.

3. The easement purchase program would be initiated by securing short-term options for easements in a single sub-watershed. The first sub-watershed would be chosen largely on the basis of local interest and enthusiasm. If owners of at least 80 percent of the Water Resources Protection District area in that sub-watershed agreed voluntarily to sell options, the Authority would then purchase the easements. This would require initial financial support from both the County Commissioners and outside agencies.

4. The easement purchase program would then be extended to other sub-basins of the Upper East Branch if it was successful in the first sub-watershed and if further county and outside financing could be secured. The Authority's intention was that all or virtually all of the land in the Water Resources Protection District would eventually be placed under development restrictions through the voluntary sale of easements by owners to the Authority.

The backbone of the plan was the proposal that the Water Resources Authority hold easements in areas most critical to the water resources. This meant that owners would have been paid not to develop some of these areas and to restrict development to very low densities in other areas.

The basic rationale for adopting this approach as a supplement to zoning in the critical areas is that: (1) zoning is too easily changed to provide the guaranteed permanence necessary for protection of the basin s water resources and of the beauty of the natural environment; and (2) the development controls necessary for the protection of the water resources would be so restrictive to land in the critical areas that it would be only fair to compensate the landowners for any loss in market value resulting from the imposition of the controls.

Public ownership of the critical areas is unnecessary and undesirable, since the only public objectives are those of conservation of water and scenic resources. These purposes do not require full public ownership of the critical areas and their removal from private use and from the tax rolls.

The Plan Principles and Rationale

The recommendations and action program outlined above were the result of a variety of hydrologic, legal, attitude, economic, demographic, geographic, landscape and other technical studies as well as discussions with officials and citizens of Chester County. The contents and findings of these studies are summarized in the following pages. This summary ties the recommendations of the Plan to general hydrologic, legal, and economic principles and specific findings about the Upper East Branch area.

The Hydrologic Rationale

The hydrologic rationale of the Plan constituted one of its most important foundations. The main reason for this is that the hydrologic system is affected in a variety of deleterious ways by urban development. Impervious ground cover in the form of buildings and pavement, and the removal of vegetation increase runoff and floods, subsequently reducing ground water levels and the recharge of the stream. During construction, sedimentation is greatly increased. Pollution loads rise with urbanization. Furthermore, these three major effects of urbanization on the stream are interrelated. Greater volumes of runoff increase erosion and flow variability. Flow variability along with sedimentation widens channels and magnifies pollution problems at low flow. All of these effects interact to reduce the amenity of the stream and its immediate surroundings. The wide, shallow channel which results becomes choked with undesirable plant life. The water becomes turbid with sediment and fouled with pollutants. The entire ecology of the stream area deteriorates and the stream, its banks and its neighborhood become unattractive.

The hydrologic objective was to maintain the present condition of the stream and, if possible, to improve it where the quality or amenity currently was less than good. The principle of accepting the basin's normal share of urban growth impinged upon the hydrologic objective and complicated planning. More people means more demand for water and more wastes to be handled. Since a major aim of the Brandywine Plan was to demonstrate that it is possible to have both urban development and sound hydrologic conditions in a basin, it was decided as an additional hydrologic constraint that all water to meet the needs of future residents should be supplied from within the basin and that all wastes generated within the basin should be treated there. If additional water were imported and wastes exported, it would be relatively simple to maintain Upper East Branch water conditions and add an urban population. However, it would not be a fair test of the thesis that the existing water resource network can serve a typical suburban population adequately and that the people need not degrade the stream.

Urbanization and Hydrologic Change

To translate the planning principles into land use proposals first requires a knowledge of what normal growth would be and how such growth--and urban growth generally--would affect the hydrologic system. Then, if such growth would result in deterioration of the hydrologic system, including water supply, quality, and amenity, what restrictions on land use could be proposed which would prevent this deterioration? Could these land use proposals take such a form as to be compatible with wishes of present and prospective residents for the future character of the environment?

Given the inexactitude of population projection, particularly for an area as small as the Upper East Branch, it seemed advisable to select a design population on the high side of the projections and for some decades in the future. If it is possible to propose a satisfactory plan for a substantial future population, living at currently popular suburban densities, then intermediate populations can be accommodated with even less damage to the environment. If preferences in densities change, and areas of higher density become acceptable, development could proceed in this direction, reaching the design population sooner than now anticipated. The choice of 38,000, the saturation population with present zoning and the Plan's recommendations, as the design population provides a sufficiently large target figure to permit considerable upward change in rate and/or density of growth in the basin. A plan which provides for 38,000 people and for protection of water resources would be valid for many years, if not assuredly to a given future date.

Study of the usual effects of urbanization on the hydrologic system showed that these effects take the following forms: increased flooding, decreased water supply, increased erosion and sedimentation, decreased water quality, and decreased amenity. These effects are caused by some unavoidable concomitants of urbanization: decrease in natural vegetative cover, increase in impervious surfaces, extensive storm sewerage, and increased use of water and discharge of wastes. Since urbanization, and these accompanying changes in land and water use, is to be accepted, the problem is to manage urbanization so that the usual deleterious effects on water resources are avoided or minimized.

This the Plan proposed to achieve by a combination of two approaches to land management. First, the areas most critical to protection of water resources have been delineated and severe limitations on development proposed for these areas so that they can continue to function naturally, as they now do, to regulate flow, to limit erosion, and to absorb pollutants. Second, for the remaining areas, where most urganization therefore would occur, a system of works--water supply, erosion control, surface runoff, and waste disposal--is proposed to reduce markedly the usual harmful effects. Whatever increased flow, sediment or pollution exceeds the capacity of these works from time to time, it is expected that the natural land in the critical areas can absorb. In this manner, the natural environment's own modifying and cleansing capacities will be used insofar as possible to prevent deterioration in the water resources of the basin.

From the hydrologic studies it was apparent that the portions of a watershed whose use most significantly affect water resources were (1) the flood plain, (2) the land adjacent to streams and swales, (3) the steep slopes, and (4) the woods.

(1) The flood plain was defined for purposes of the Plan as that area flooded on the average of once every 50 years. This area has been shown to approximate the area which lies below the line created by the intersection with nearby slopes of a plane with a height above the stream bottom of twice the average height of the stream banks. It includes the actual flood plain, as technically defined below, and terraces. Three percent of the Upper East Branch watershed is flood plain as here defined.

(2) The stream buffer is defined as all land lying within 300 feet of all streams and swales, exclusive of flood plain land. The role of the stream buffer is to prevent many of the harmful effects of urban development from reaching the stream network. Effluent from on-site sewage disposal systems, leaching from junkyards, sediment eroded from land under development, and overland flow of pollutants either can be retained or absorbed by the stream buffer or their impact on the stream reduced. The stream's natural amenity also is protected by keeping development set back from the stream.

(3) Slopes are defined as all contiguous areas of at least five acres with slopes of 15 percent or greater, exclusive of stream buffer land. Twenty-foot contours on Geological Survey maps were used to determine steepness and extent of slope. Many steep areas, particularly along the

lower portion of the stream, already are marked for protection as part of the stream buffer. Most of the remaining slopes of 15 percent or greater are either adjacent to the stream valley but over 300 feet from the stream or on the two major ridges in the basin. Slopes are critical for water resource protection primarily because they are prone to erosion.

(4) Woods are defined as all contiguous areas of at least ten acres shown as woods on the Geological Survey maps, exclusive of flood plain and stream buffer land. In many instances, woods and slopes coincide. The Brandywine Plan takes the position that while woods may suitably be urbanized, they are of even greater importance for water resource protection.

All of the critical areas together constituted the Water Resources Protection District. This District therefore included all of the flood plain, stream buffer, and woods and slopes land in the watershed. The Water Resources Protection District was mapped at a scale of one inch equals 400 feet, and each property owner was sent a copy of a portion of this map showing which parts of his land were included in the District and whether they were flood plain, stream buffer, and/or woods and slopes.

Forty-six percent of the land in the Upper East Branch basin lay within the Water Resources Protection District. This total area closely approached the overall recommendation of the staff and advisory hydrologists that half of the land be kept in open space uses and natural vegetation. An additional general recommendation was that the most critical lands were those nearest the stream and swale network. In the early stages of establishing the critical areas, consideration was given to selection of that 50 percent of the basin nearest the stream and several possible ways of defining this were explored. However, this possibility was discarded because of the omission of some steep slopes and woods. The vulnerability of steep slopes to erosion and the contribution of large wooded areas to erosion prevention and preservation of amenity were judged of greater consequence to water resource protection than a more extensive stream buffer undifferentiated as to slope or vegetation.

Land Use Restrictions in the Water Resources Protection District

Land use restrictions proposed for the Water Resources Protection District were supplemental to township, county, and state regulations and were designed specifically to achieve the water resource objectives of the Plan. At the same time restrictions were to assure fair treatment of all landowners and permit as wide a range of uses as is compatible with water resource protection, so that the restricted land would be readily marketable.

The use restrictions for the Water Resources Protection District limit the density of future development, restrict the amount of impervious cover of future development, and provide for hardship situations. The density restrictions applied primarily to construction of single-family detached houses. All other types of development were possible, subject to limitations on impervious cover and to township zoning provisions.

Generalizing about the impact of the restrictions, in the flood plain, no new development would occur; in the stream buffer, new development could occur only in hardship situations and subject to density or impervious cover limitations; and, in the woods and slopes, new development could occur, subject to density or impervious cover limitations. Choice of type of development remains the responsibility of the townships, to be reflected through zoning and other township regulations.

Hardship situations were defined as those in which a parcel was unimproved, having no dwelling, commercial, institutional, or industrial structures erected on it, and (1) was located so that at least 90 percent of it lies within the Water Resources Protection District or (2) had too small an area outside the Water Resources Protection District to permit construction there of a building under applicable township regulations.

Land Values

Sample appraisals of properties which would be affected by the Water Resources Protection District were made. The approach was to establish property values under present conditions and to estimate what the value would be immediately after conservation easements are sold. The difference between these two values should be the fair price of the easements. The appraisals suggest that the total cost of the easement program would be approximately 3 million dollars. Economic theory suggests that compensation in the form of easement purchases is likely to err on the side of overpayment to landowners if this compensation is based only on the immediate drop in value. It was hypothesized that subsequent land values, both in the restricted areas and in the surrounding unrestricted development areas, would rise faster than in similar watersheds outside the Upper East Branch. This would be due to the increasing scarcity of open low-density areas in the metropolitan region, and the effect of the permanent environmental guarantees in the Upper East Branch in removing much of the uncertainty about future land values. These values would ordinarily be affected adversely by the anticipated decline of environmental amenity.

Both the appraisals and a statistical analysis of recent property sales in the Upper East Branch suggested that the lands which would be affected by development restrictions are generally below average in present value. This is reasonable since the flood plain and buffer areas tend to be poorly drained and unsuitable for on-site sewage disposal. Steep slopes present obvious development difficulties. In fact, the areas least suitable and most costly to develop correspond surprisingly well with the Water Resources Protection District.

Sewage Disposal and Subdivision Controls

The basic program of easement acquisition would clearly not be successful in achieving the desired effects without further control on development. One of the underlying principles of the Plan was that as many people should be housed in the Upper East Branch area under the Plan as would live there without the Plan. Under the Plan's recommendations and existing zoning regulations, as much new house construction as is expected over the next 50 years could be accommodated. This would total 38,000 people.

A further principle was that the water demand and sewage load created by this population should be managed within the Upper East Branch Brandywine basin, while maintaining high stream quality standards. Therefore, a water supply and sewage disposal plan and special subdivision control regulations relating to construction practices and to sediment and runoff control were important adjuncts to the basic land use controls.

Legal Principles

A guarantee of the United States and Pennsylvania Constitutions, that private property shall not be taken for public purposes without just compensation, underlies the principle of the Brandywine Plan that fair compensation be paid for development restrictions.

Protection of water resources--water supply, water quality, and stream amenity--is a public purpose justifying the exercise of public control of land use. In limiting the use which some private landowners may make of their property in order to achieve a valid public objective, it is essential that provision be made for compensation to the landowners if the restrictions, by severely limiting the use which may be made of the land, considerably reduce its market value. Where the restrictions do not seriously impair market value, compensation need not be paid.

The principle, though not the law, of fair compensation extended further in the Plan. What is legally adjudged fair compensation still may leave the landowner in a less favorable future economic position relative to other landowners in the basin. Therefore, meeting the full objective of the principle requires provision of a means whereby a restricted landowner may place himself in an equally competitive position with other landowners to share in development gains. Such a means would be share ownership in a development corporation.

Attitudes and Public Acceptance

All who participated in developing the Plan agreed that it should receive the endorsement of the people of the Upper

East Branch and of municipal and county officials for implementation to be warranted. It was further agreed that endorsement should come from the individual citizens of the watershed, both those whose land would and would not be affected by the Plan's proposed land use controls, from the township officials who represent these people, and from the county officials who must consider the broader welfare of the citizens of Chester County in weighing the impact of implementation of the Plan.

The question of the acceptability of the Plan and its method of implementation go far beyond the problem of coordination between the Plan and the plans and projections of the individual affected townships. Many of these problems are pointed up both from the general point of view and from the point of view of the experience of the planners in presenting the Brandywine Plan to the residents of the area. Acceptance of the purposes of the Plan was widespread, as was anticipated from the results of the attitude study reported in the next section. This acceptance was not matched by political acceptance of the methods to be used.

The attitude study suggested a strong local desire for the preservation of the environment and a preference for living in such an environment. It is interesting that those who presently live in attractive rural areas do not appear to engage in outdoor activities much more than those who live in denser urban areas. In fact, one of the strongest motivations seems to be the privacy which comes with very low density development. This suggests that there is probably a good market for the large lots which would be required in the Water Resources Protection District.

This desire for privacy is consistent with the conservative political philosophy of many Upper East Branch residents. Both the attitude survey and the reaction to the Plan indicate a strong dislike for government intervention in private property rights, even though compensation is paid for the restriction of these rights. Respect for this viewpoint has led the Water Resources Authority to insist that the sale of easements by the landowners would be voluntary rather than forced by the use of eniment domain.

Summary

The Plan for the Upper East Branch of Brandywine Creek was a plan for protection of water resources and natural amenities within the context of normal urban growth. Planning for urbanization, including transportation, education, housing mix, commerce, and industry, was to remain the responsibility of the existing network of township, county and regional planning agencies. However, since urbanization inevitably affects water resources and natural amenities, a plan for their protection necessarily must influence urbanization plans. Concomitantly urbanization plans will affect water resource plans. The Plan started with the premise that urban man can and should live in harmony with nature, and that therefore the first step of planning for people should be to assure the protection of a substantial portion of the pre-existing natural environment. If this premise is accepted, it imposes a constraint on urbanization planning but still leaves considerable room for the operation of other constraints and objectives.

The Brandywine Plan sought to assure that the water supply, water quality, and stream valley amenity of the Upper East Branch watershed would be as good or better than they are today after urbanization comes. Self-imposed constraints on this goal are that as many people should be accommodated in the basin as would move there absent the Plan, that water not be imported or wastes exported, that development of the basin be more economically beneficial under the Plan than without it, and that present residents be fairly compensated for any restrictions placed by the Plan on their right to develop.

The Plan differed from many plans in that the translation of the principles for the basin into land use proposals is accompanied by specific recommendations for an action program of land use controls to implement the proposals. Essentially, these controls would consist of easements to prevent or limit development in areas most critical to the stream and of regulation of the remaining land to prevent development inimical to water resource protection. Acceptance of the Plan would include acceptance of the land use control program. The Chester County Water Resources Authority was the public agency empowered to carry out many of the land use control proposals. Enactment of the remaining controls would be the responsibility of township government or of other county agencies.

SECTION V

THE BRANDYWINE: FIVE YEARS AFTER

Introduction

In July of 1968, the Brandywine Plan as originally drawn up and presented to residents of the Brandywine Project area was rejected due to substantial citizen opposition. The Plan, which was designed to preserve the water and land resources of the Upper East Branch of the Brandywine Creek, was by no means a conventional plan. As an approach to water resources planning, the Plan proposed to test the efficacy of certain legal controls in regulating the effects of spreading urbanization on the natural environment (especially water resources). The Plan's novelty rested primarily on two factors. Foremost was the degree of permanence given to voluntary citizen attempts at protecting their water resources through the use of deed restrictions, for which the landowners were to receive compensation. In addition, plans for land use controls were based upon extensive technical data.

The restrictive and voluntary nature of proposed controls on land uses called for considerable citizen involvement. Implementation would have been undertaken only if the supervisors of each of the eight townships involved recommended approval of the Plan to the County Commissioners. Approval, dependent upon positive citizen response, was not forthcoming.

This section is based upon two interviews of a sample of residents of the Upper East Branch Watershed, one conducted during the preparation of the Plan and the other after rejection of the Plan several years later. These interview surveys were designed with several objectives. The initial survey was intended (a) to provide an information base against which change within the target area could be monitored; and (b) to elicit citizen attitudes and preferences so that they might be reflected in the Plan's recommendations. The findings of this first survey are recorded within The Plan and Program for the

Brandywine. The second survey was intended to determine (a) the reasons for the Plan's lack of public acceptance and (b) the effects of the planning experience on the attitudes and knowledge of the basin's residents. Since the survey design was similar in both instances, changes in the residents' attitudes toward the environment and growth during the five year period may be measured.

The rationale of the survey is based upon two requisites for a successful planning venture: the persons affected by a plan's provisions have to both (1) perceive the need for the plan and for realizing its objectives, and (2) be sufficiently familiar with and amenable to various regulatory controls so that they may lend their support or constructive criticisms to implementing proposals.

An important criterion for selection of a location for the present project specified that development be at least five to ten years away. While this was an ideal stage at which to introduce a program to accommodate development and growth in the watershed with a minimum of damage and disruption to the water, scenic and other natural resources of the area of value to its residents, it created problems of timing. The researchers wondered if people can see a need for planning before problems arise or whether they must wait until it is "too late" to plan for them.

In the case of the Brandywine basin, community response depended upon recognition of: (1) the problem - that development threatened the existing nature of the watershed community; (2) the immediacy of the problem, and the relationships between the problem and the need to plan for it - that this threat could be countered by effective and thoughtful planning measures. Furthermore, in the case of the Brandywine, those planning measures involved restrictions on the use of property. Each resident, therefore, had to be convinced that the benefits conferred by the Plan on him personally and/or to future generations outweighed the costs.

In order to determine the attitudes and preferences of the UEB's residents in regard to the basin's future development and environmental quality, several research areas were delineated. These included (1) perceptions of and attitudes toward growth and the natural environment, (2) knowledge of and attitudes toward land development regulation and other local governmental intervention, and (3) understanding of and response to the Brandywine Plan and impact of the Plan on the attitudes of residents. The findings relative to these three research areas are presented in the three subsections below, following a brief description of the sample and survey design.

Sample Design and Procedure: 1966 and 1971

The original survey in 1966 was an area sampling of the residents of the UEB (Upper East Branch of the Brandywine) watershed.

To choose households for interviews within a selected segment, defined as a portion of a census enumeration district, a sampling rate was applied based on the 1960 estimated number of households. This rate yielded seven households per segment. The procedure was self-weighting and it assured that each household within a segment had an equal change of being selected. In addition, for future purposes the use of a sampling rate rather than a quota for each segment was to guarantee that the sample would be adjusted in size for an increase or decrease in population since 1960 (assuming an even growth rate throughout the UEB, which proved not to be the case).

The number of households designated for interviews was larger than the total number of interviews needed to allow for refusals and non-contacts. In each household either the male or female head was interviewed. The sex of the person to be interviewed was determined in the following manner: if there was only one household head, he or she was interviewed. If there were both a male and female head, the sex of the person to be interviewed was determined using a random method yielding an equal balance between male and female. Ultimately a total of 165 persons were contacted and interviewed, approximately 12 percent of the basin's households.

The universe of intended respondents for the second interview, conducted in 1971, consisted of those respondents in the first survey who were still residing within the basin.

The decision to restrict sampling to only the population residing within the basin continuously since 1966 was based upon a number of important criteria. Comparative analysis of attitude change over a five year period restricted analysis to the original sample. Determination of residents' attitudes, knowledge and understanding of the Brandywine Plan, and any effects of the project as a whole required that the target population live in the UEB at least since the early part of 1968. Acceptance of the Plan and efforts of the project to educate the community about land use controls and the need for planning effectively involved only landowners within the UEB. Time and financial constraints, in addition, led to the narrowing of potential respondents to that population yielding the most crucial information, i.e., the 1966 sample. Since that sample included renters, they were excluded only for purposes of analysis of the Plan. Essentially the sample design was a panel design, capitalizing on the ability to follow a specific population over a five year period.

A total of 82 persons, or approximately one-half the original sample, were interviewed in the second survey. This figure represents approximately 6.2 percent of the present households in the watershed and approximately 8.2 percent of those households living continuously in the UEB since 1966. Statistical tests indicated that respondent characteristics were similarly distributed for both the 1966 and the 1971 sample.

Perception of Growth and Environmental Changes and their Valuation

This subsection investigates perceptions of change within the watershed by UEB residents. As such, it gives an indication through their eyes of what was happening and how they felt about it. Questions were asked pertaining both to the natural environment and man-made alterations in the environment as a result of growth.

In order to elicit perceptions of the extent and type of growth in the watershed, the following question was asked: "Has there been much growth in the area in the past five years? Where? What kind?" Answers to the question "how much" were as follows:

No growth	11	percent
A small amount	16	"
Steady	40	"
A great deal	28	"
Do not know	5	"

The responses, which must be interpreted as subjective assessments by the interviewees, indicate that most persons felt the area had grown at a steady pace. Respondents were not asked this question in 1966, so there is no data for purposes of comparison. However, the frequency with which persons responded to this question by volunteering that the rate of growth for the years 1966-1971 was much higher than for the preceeding years indicates that development activity in the watershed became more noticeable after 1966.

The phrasing of the question "how much growth" was purposely vague so as to derive information not only on the amount of perceived change within an area, but also to measure the respondents' sensitivity to those changes. If the assumption is that everyone is equally sensitive to new growth, the responses to the question "how much" should vary by township, since it is known that there were wide differences in rates of growth among the seven townships. Analysis proves this assumption false; there are no observable differences in responses by township. Such a result indicates that perhaps people are most sensitive only to new growth in their immediate vicinity and/or that persons become accustomed to new development, becoming increasingly tolerant of each new dwelling. In other words, one new house on a road in a sparsely developed area may seem as great a change to the neighboring farmer as would a string of five new homes to the person in a more densely populated area.

The most frequent response to "what kind of growth?"

was "houses," with 64 persons (78 percent of the sample) mentioning some form of residential structure (either "residential development," "scattered homes," "trailers," or "apartments"). In terms of type of residence, 48 percent of the respondents answered "residential development," whereas 30 percent mentioned "scattered homes." Table 1 shows the distribution of the respondents' perceptions of growth in the past five years by type as well as their views as to the probable types of development in the future.

TABLE 1: UEB Residents' Perceptions of Growth by Types, for the Past 5 Years and for the Future, 1971

	"What kind of growth has occurred in the area in the last 5 years?"		"What kind of growth do you think will occur in the future of the UEB?"	
Response	# of responses	% of sample	# of responses	% of sample
Residential development	39	48	48	59
Trailer parks	14	17	9	11
Industry	12	15	7	9
Commercial	3	4	7	9
Scattered homes	25	30	4	5
Dam project influence	12	15	17	21
Services resulting from growth--roads, parks, etc.	1	1	3	4
Apartments	8	10	1	1
Cluster housing, Puds	0	-	2	3
Don't know	7	9	12	15
TOTAL	121		110	

The next set of questions attempted to probe perceptions of forces of change in the watershed. Indications of change in the composition of the UEB population are manifested through the questions "Who is buying?" and "Who is selling?" Although the large number of persons who responded "don't know" indicates that answers to this question are probably highly intuitive, the responses do reveal a definite trend. Farmers and older persons are perceived as leaving the area, while younger people--persons predominantly from the nearby cities and suburbs to the east, but also from Philadelphia and the immediate vicinity--are perceived as in-migrants. It should also be noted that developers and speculators are mentioned, but with much less frequency than persons buying or selling residences. (See Table 2)

When asked "Why are they selling?", the simultaneous plight and power of the farmer in the face of development becomes apparent. His inability to make farming profitable and/or the desertion of the farm by his offspring, combined with the value of his land for residential development frequently leave the farmer no choice but to sell. Because most of the people felt that the farmers wanted to hang on for as long as possible, they stated that large landowners who were forced to sell usually sold off roadside lots, one at a time. In fact, however, several farmers had sold sizeable holdings in the past five years. In view of this, how could the residents maintain that large properties were unlikely to change hands? This is a question of some importance, because, as we shall see when we come to the discussion of the reasons behind the rejection of the Plan, many opposed it as unnecessary. They were convinced that farmers were not about to sell off their entire holdings, and that farmers could protect the natural resources on their property better than outside planners possibly could.

In order to evaluate the relative importance of factors which might induce landowners to sell their property, they were asked to rank each of five different factors in both the 1966 and the 1971 surveys. These factors included (1) higher real estate taxes, (2) considerable

TABLE 2: Perceptions of Buyers & Sellers of Land in the UEB, 1971

"Who is buying?"			"Who is selling?"			"Why are they selling?"		
Response	# of responses	% of responses	Response	# of responses	% of responses	Response	# of responses	% of responses
1. Young people	4	5	1. Farmers	31	38	1. Old people--maintenance	5	6
2. Persons from other cities, suburbs	22	27	2. Speculators, investors	11	13	2. Property taxes	4	5
3. Local people	12	15	3. Older people	6	7	3. Retire from farming--nobody to take over	7	9
4. Speculators, investors, monied people	6	7	4. Real estate	6	7	4. Farming not profitable	6	7
5. Developers	6	7	Ø Don't know	34	41	5. Job transfers	5	6
6. Philadelphians	13	16	TOTAL	88		6. Offers for land	23	28
Ø Don't know	32	39				Ø Don't know	42	51
TOTAL	95					TOTAL	92	

building in the area, (3) a good offer, (4) a change in personal or family situation, and (5) none of these factors or other unspecified reasons.

Responses were obtained only from those who own the land on which they reside. Results of the original survey indicated that "change in personal or family situation" was overwhelmingly the most important influence in the event of a sale. The other three reasons were very close in numbers of persons indicating them as a first factor, with "a very good offer" second most important, "higher real estate tax" third, and "considerable building in the area" last. In the intervening five years, a considerable shift in sentiment has occurred, with "higher real estate tax" advancing 14 percentage points at the expense of the other responses, although personal factors remained the most important reason to sell. When analyzed in terms of size of landholding, large landowners were no more sensitive to taxes than were small property owners.

The exurban character of the UEB was reflected in the 1966 results which show that compared to residents of areas with a high degree of urban development, UEB residents were more sensitive to building in the area and less responsive to offers to buy their land. Analysis of second responses of reasons to sell reveal an increased willingness to respond to offers for land and an increased tolerance to building in the area. As such, watershed residents are becoming more like their more urban counterparts.

Respondents' identification with the existing framework of scattered and dispersed community centers also remained the same after five years. They were asked, in both the 1966 and the 1971 survey, if they regarded their residential location as part of a community. Those responding affirmatively were further asked to identify the geographic center of their community.

In both surveys, approximately three-fourths of the respondents identified with a community, one-fifth indicated that they did not, and the remainder were uncertain.

This result led the researchers to two conclusions. First, growth has as yet had little effect on the visible community structure of the area, and therefore has not led residents to perceive the threat which growth might exert upon the social status quo. Second, the seeming stability of identification with the existing dispersed community centers hinders a recognition by area residents that they are all in the UEB water resources boat together.

A third subject interviewees were questioned about concerned changes in the natural environment in the past five years. When asked directly "Has the natural environment of the area changed in the last five years?", the majority did not feel that it had: approximately one-half of the sample responded in the negative, two-fifths felt that the natural environment had changed, and the remainder were unsure. Those who responded affirmatively were asked what caused the change. The results are as follows:

Response	No of persons	Percent of respondents
Development	21	66
Less farming	1	3
Pollution	15	47
New roads	1	3
Trailer parks	6	19
Other	2	6
Total	46	

For those who felt the environment had changed, two-thirds attributed the change directly to development, while the other respondents indirectly indicated the influence of growth. Over 90 percent of those persons sensitive to changes in the environment saw either "a steady" or "a great deal" of growth in the watershed.

Respondents were also questioned in both surveys about their perceptions of their immediate environment. In addition, they were asked to distinguish those features that they liked and those that they disliked. Responses indicate that there was a significant change in the ways people described their environment--fewer persons spoke in 1966 in terms of the natural environment or neighborhood characteristics, while the number of persons describing the area around their home merely in terms of a value judgment (i.e., "this is a good place") increased. One drawback to assigning any conclusive meaning to this difference is the fact that in the latter survey, there were quantitatively fewer responses and many more value judgments in lieu of descriptions, indicating that the original interviewers pressed people harder for responses.

When changes in what respondents like and dislike about their area are combined with the shift in the manner in which they described their environment, a clearer picture begins to emerge. There was very little change in what people said they liked, with two important exceptions--they mentioned the beauty of the area 40 percent less frequently the second time around and the rural atmosphere 30 percent less frequently. These statistics, together with those concerning the decrease in persons describing their area in terms of the natural environment, indicate a definite decline in the immediacy and importance of the natural environment to our respondents. Since the people interviewed are the same, and there is no reason to suspect that their desire for and enjoyment of the natural environment and rural beauty has changed in five years, it may be speculated that the natural environment is not as important a factor in people's lives now as it was five years ago because of changes in the environment itself. Among those characteristics that were disliked only "development" was cited at a considerably greater rate in 1966. When taken together with the decrease in persons describing their area in terms of the natural environment, the indication is that people are rarely more satisfied with their area than they were five years ago, and are frequently less so, primarily because of the development which has taken place.

It is clear that many persons felt that changes in the natural environment were a result of development within the area. In order to obtain respondents' views as to how they would accommodate new growth with a minimum of harm to the environment, they were asked, "How should growth relate to the natural environment?" The researchers were most interested in answers that would indicate whether or not a person might be in favor of plans to mediate the efforts of growth on the natural environment, and a recongition of the need for water resources planning. (Table 3)

TABLE 3: "How Should Growth Relate to the Natural Environment?" 1971

Response	No. of responses	% of sample
A. We must accept growth	4	5
B. Use land for its best natural use	14	17
C. Build cluster housing	2	2
D. Growth destroys the the natural environment	11	13
E. Growth has no effect on the natural environment	2	2
F. Do not overpopulate	21	26
G. Limit growth to protect water resources	18	22
H. Maintain open space	12	15
I. Don't know	20	24
Total number of responses	104	

The question proved to be a very difficult one for most of the interviewees. One-fourth of them had no answer. Another 25 percent felt that there was either no way or no need to accommodate growth to the environment (those persons who responded with "growth destroys the natural environment" and those who said "growth has no effect on the natural environment"). Although very few of those respondents indicating that there was a relationship between growth and the environment revealed a sophisticated understanding of the environmental problems involved in a developing area, most residents were cognizant of the problem to some degree, usually because of concrete experiences in the area with problems of water supply, pollution, waste of land, and elimination of open space. Their answers tended to reflect the present ideology of UEB planning in attempts to cope with these problems, i.e. the use of large lot zoning and the intentional lack of sewerage to keep the population down. The most frequent responses were "don't over-populate" and "limit growth to protect water resources," allowing only as much as the water supply can handle without public sewerage.

At the time of the second survey, development did not appear to pose a significant threat to UEB residents. Most of them saw changes, but, for the majority, growth had little effect on their view with respect to either community identification or the natural environment. They were not, however, complacent about the future. Most of them felt that development would continue, and many persons expressed dissatisfaction with the prospect of such a situation. In order to provide some dimensions to this reaction, interviewees were asked to respond to three development scenarios, (1) the area unchanged, (2) a "small" amount of development and (3) a subdivision next door.

The large percentage of respondents who indicated that they would be satisfied if growth merely continued at its present pace would seem to imply an acceptance of the present rate of development. (See Table 4) This was often reflected in residents' comments that, although they would prefer to have the watershed remain as it is, they realize that increases in the population makes a certain amount of growth inevitable. Only one-quarter percent of the sample would be satisfied with a subdivision next door, however, and even this figure may be too high in view of the number of persons who stated that an adjacent housing project would not bother them because they had enough land to

TABLE 4: Reactions to Development Scenarios, 1971

Development Scenario	Reaction			
	Satisfied	Dissatisfied, but stay	Move away	Don't know
Area remain the same	93%	5%	1%	2%
Small amount of development	77%	20%	1%	2%
Subdivision next door	26%	44%	28%	2%

protect themselves from such an eventuality. Those able to afford large acreage possess what is in effect their own personal planning device--insulation through distance.

Even those who were inured to development would prefer none at all. A number of persons who were dissatisfied with the watershed felt that the area had already changed too much to suit them. The majority of the people of the UEB were born and raised in rural areas, and they wanted the region to remain as it was. Despite the fact that community structures are still essentially intact and people are confident that both they and their immediate neighbors will hold the line against growth, the survey results indicated that watershed residents were able to see changes and were beginning to feel the effects of development, most noticeably in the form of rising taxes and increasing water pollution. What they would be willing to do in order to meet these problems hinged on their understanding and acceptance of land use controls. This is the subject of the next subsection.

Familarity With and Attitudes Toward Land Use Controls

What kinds of trade-offs are residents willing to make between a landowner's right to use his land as he pleases and the acceptance of controls for the benefit of natural preservation and accommodation of growth? In an attempt to answer this critical question, our research was divided into: (1) an examination of community familiarity with various land use controls and any changes in familiarity over the five year period; and (2) general community attitudes toward the proper roles of government and landowners in the achievement of ordered development.

The portion of the 1966 attitude survey concerned with this question was designed for use by the project staff to anticipate support for and resistance to the Plan, and to investigate reasons for reactions toward the use of specific legal controls. In the present analysis this concern is expanded; change within the past five years is, in part, a measure of the impact of the project. Did it succeed in educating the community to alternative land use controls--especially to the use of a compensable control, in this case conservation easements? If area residents are more familiar with mechanisms of control, are they more likely to accept such controls?

At the time of the first survey in 1966, planning and land use restrictions were a recent phenomena in the UEB. Only three of the townships in the basin were zoned, and those with the largest populations were among those without zoning. A number of townships were, however, in the process of developing zoning regulations, an effort which was surrounded with considerable controversy. By 1971 all but one of the townships had adopted zoning ordinances and completed comprehensive plans.

Aside from publicity associated with the Plan, the experience of UEB residents with easements per se had been limited to utility and railroad rights-of-way. These types of easements are rarely contested as they are purchased under the threat of the use of the power of eminent domain. In this regard they differed greatly from the conservation easements proposed in the Brandywine Plan. Apart from the obvious differences in the purpose and content of these deed restrictions, the Plan proposed that the easements were to be strictly voluntary, even though the public purpose aspect of the Plan would have allowed the use of eminent domain.

Both the 1966 and the 1971 survey contained a series of questions pertaining to knowledge of three means of controlling land use: zoning, comprehensive planning, and conservation easements.

As could be expected, of the three controls in question, people in the UEB area were most familiar with zoning. (See Table 5) In both 1966 and 1971, almost all of the respondents indicated some familiarity with the idea of zoning: approximately one-half were "very familiar" with zoning and 40 percent "just heard of it." The significant changes occurred in expressed familiarity with comprehensive planning and conservation easements. The increase in the number of persons who heard of comprehensive planning was great--38 percent more persons had heard of comprehensive planning in 1971 than in 1966. There was an increase of one-third in "the very familiar" category of comprehensive planning, and an increase of one-half in the "just heard of it" category.

The most significant change in exposure within the five-year period 1966-1971 was represented by the 50 percent increase in those who had heard of conservation easements. Those who felt they were "very familiar" with the concept increased approximately 150 percent--from 11 to 27 respondents. This increase could in large measure be attributed to the Brandywine Plan.

To determine the reliability of responses, respondents were further asked if their township was zoned, if it was engaged in comprehensive planning, and if conservation easements sounded like a good idea.

In regard to zoning, in 1966 as many respondents knew correctly whether their township was zoned as did not. (See Table 6) Both categories represented approximately 40 percent of those who had heard of zoning.

TABLE 5: Familiarity with Zoning, Comprehensive Planning and Conservation Easements, 1966 and 1971

	"Very familiar"			"Just heard of it"			"Never heard of it"			TOTALS	
	#	%	% change	#	%	% change	#	%	% change	#	%
Zoning:											
1966	44	53.5	-	32	39	-	6	7.5	-	82	100
1971	45	55	+ 2.3	33	40	+ 3.2	4	5	-33	82	100
Comprehensive Planning:											
1966	20	24.5	-	20	24.5	-	42	51	-	82	100
1971	26	31.6	+ 33	29	35.4	+ 45	27	33	-36	82	100
Conservation Easements:											
1966	11	13	-	31	38	-	40	49	-	82	100
1971	27	33	+ 150	35	42.5	+ 13	20	24.5	-50	82	100

TABLE 6: Township Zoning Status and Responses to: "Is your township zoned?", 1966 and 1971

	Responses	
Summary	1966	1971
% Correct responses	40	75
% Incorrect responses	43	18
% Don't know	17	7
Total	100	100

These figures were changed substantially in 1971. In the correct response category, three-fourths of the respondents familiar with zoning answered correctly, one-fifth incorrectly. This seems to indicate that although there was no change in responses directly indicating a respondent's familiarity with zoning, there was a significant increase in their awareness of the control as it pertained to them.

The picture in regard to comprehensive planning is more difficult to assess. Most planners would view comprehensive planning as an ongoing process dependent not so much on the existence of a comprehensive plan as on a continuous reevaluation of the Plan by a staff or consulting planner. While it is true that the UEB as a whole has engaged a regional planning consultant, he has only the power to advise. The power to plan and approve subdivisions and the like lies with the individual townships. As to the existence of a planner at the township level--there is no such animal in the UEB. Therefore the researchers attempted to use the comprehensive plan as a guideline for analysis.

The data indicated that the overwhelming tendency was for a respondent to state (if he responded at all), that the township was engaged in comprehensive planning. The researchers' impression was that most respondents did not understand the rather technical term and thought of "comprehensive planning" as performing planning tasks, i.e. building roads, schools, subdivision approval, etc., as they arose. Unfortunately the yes/no nature of the response did not enable an exploration of the degree of community sophistication with the concept to any greater extent at this point in the analysis.

In the case of conservation easements, in both 1966 and 1971 the majority of respondents holding opinions on conservation easements thought that it sounded like a good idea. (Table 7) There was, however, a statistically significant change in the distribution of answers. The proportion of those thinking it was a good idea to those who felt it was a bad idea declined from 1966 to 1971. In 1966 it was 3:1 in favor of the idea and in 1971 it was 3:2 in favor of the idea. While those who favored the concept of conservation easements increased 72 percent in five years, those who disliked the idea increased 250 percent.

TABLE 7: Attitudes Toward Conservation Easements, 1966 and 1971

	Good idea			Bad idea			Mixed feelings		Don't know			TOTAL	
Responses	#	%	% change	#	%	% change	#	%	#	%	% change	#	%
In 1966	18	43	-	6	14	-	1	2.3	17	40	-	42+	100
In 1971	31	50	+72	21	34	+250	3	5.0	7	11	-59	62+	100

In addition, respondents were further questioned about reasons for their opinions about conservation easements. (See Table 8)

Table 8 indicates a substantially greater percentage of respondents did not know why they felt as they did about conservation easements. At the same time, a lower percentage of respondents gave vague responses such as

TABLE 8: Reasons for Opinion About Conservation Easements, 1966 and 1971

Opinion	Response	1966		1971		% change
		#	%	#	%	
Good Idea	1. Conservation/water supply	14	50	17	30	+ 21%
	2. As a mechanism, forceful, more fair than zoning	6	21.4	8	15.75	
	3. Increased market value	-	-	1		+ 50%
Mixed Feelings	4. Good for some, bad for others; selective restrictions	-	-	3	8.75	
	5. Doesn't affect everyone equally; property tax burden on some	2	7.1	2		
Bad Idea	6. Landowner's rights	3	10.7	12	21	+300%
	7. Market value decreased	-	-	2	8.75	
	8. Problems of administering and use	-	-	1		
	9. Property tax anyway	2	7.1	2		
	10. Don't know:					
	Good idea			3	15.75	
	Bad idea	1	3.5	4		
	Mixed feelings			2		
TOTAL		27	99.8	57	100	

"conservation is a good thing." There was a 66 percent increase in absolute terms in those categories of responses which were deemed to be more explicit reasons for thinking conservation easements were a good idea. The corresponding distributional decline in this group is relative: (1) to the increase in those who now held opinions about conservation easements without being able to give a verbal reason for doing so, and (2) the percentage increase in those who now feel the deed restrictions are a bad idea. The increase in those antagonistic to the notion of conservation easements was greatest for those holding a belief in a landowner's right to do as he pleases with his land. There were four times as many respondents holding this view in 1971 as in 1966. It is noteworthy that those now holding negative opinions about this form of land use control speak strongly about a belief in the absolute rights of the landowner in seeming reaction to the Plan proposal. This is in sharp contrast to the explicit reasoning of those who adopted the posture of the Plan's proponents.

In sum, many more people had become familiar with conservation easements from 1966 to 1971. However, at the same time many more people also became entrenched in the belief that, in theory, easements were bad because they took away the right of a landowner to do as he pleased with his land.

To the extent to which we could relate socioeconomic characteristics of the sample to familiarity and opinions on conservation easements, inferences could be drawn about future efforts to introduce these concepts to a community. In the analysis of the first questionnaire it was stated that to the extent that it can be determined from the small sample, opinion on conservation easements does not seem influenced by ownership of land, or the size of parcel owned. There was some evidence, however, that landowners are better informed about conservation easements than are those who do not own the land they live on. In 1971 the sample showed more definite relationships.

An analysis of the personal characteristics of those who stated that they were familiar with the concept of conservation easements revealed that there was still no relationship with where a respondent grew up and his income. However, when familiarity with easements was cross-tabulated with size of parcel owned in 1971, a significant relationship emerged. Those with larger parcels of land tended to be more familiar with easements than were those with smaller parcels of land. (See Table 9) There was also some

TABLE 9: Familiarity with Conservation Easements
by Size of Landholdings, 1971

Size of Parcel Owned	Very Familiar #	Very Familiar %	Just Heard of It #	Just Heard of It %	Never Heard of It #	Never Heard of It %	TOTAL #	TOTAL %
Under 2 acres	6	23	16	60	11	69	33	48
2-10 acres	9	35	6	22	3	19	18	26
11-51 acres	6	23	3	11	-	-	9	13
51+ acres	5	19	2	7	2	12	9	13
TOTAL	26	100	27	100	16	100	69*	100
Renters	1		8		4		13	

*Landowners only

indication that landowners as a group were still better informed than those who do not own the land they live on.

Familiarity with conservation easements also proved to be significantly correlated with educational attainment. (See Table 10) The extent of familiarity increased with the level of educational attainment, and statistical tests proved that this relationship existed independent of size of landholdings.

Knowledge and understanding of the various land use controls are not necessarily related to a resident's reactions to such controls. In order to provide some dimensions to the acceptability of the idea of conservation easements, respondents were further asked a series of questions designed to measure their attitudes toward the use of easements. Although no relationship was found to exist among the various social characteristics of the

TABLE 10

Familiarity with Conservation Easements by Educational Attainment for Landowners,1971

Highest School Attended	Very Familiar		Just Heard of it		Never Heard of it		TOTAL	
	#	%	#	%	#	%	#	%
Elementary	2	8	3	11	7	44	12	17
High School	14	54	18	67	5	31	37	54
College	10	38	6	22	4	25	20	29
TOTAL	26	100	27	100	16	100	69*	100

*Landowners only

population and the opinions they held on conservation easements in 1966, this was no longer found to be the case in 1971. Table 11 shows that those who owned larger parcels of land were much more opposed to easements than were smaller landowners and renters.

TABLE 11

Opinion on Conservation Easements by Size of Parcel for Landowners, 1971

Opinion	Renters	Less than 2 acres	2-5 acres	6-10 acres	11-50 acres	50+ acres	TOTAL
Good idea	7	16	2	1	3	4	31
Bad idea	1	3	6	3	5	3	21
Don't know, undecided	5	16	4	2	1	2	30
TOTAL	13	35	12	6	9	9	82

An open-ended question was used in the first survey to determine the relative importance which residents of the UEB attached to natural environmental preservation as opposed to the rights of landowners to use their land as they wished. The data from the 1966 survey indicated that Brandywine residents were equally divided on this issue, with approximately one-third of the sample stressing each of the positions.

In 1971 respondents were asked who, if anyone, held the power to control growth in the Brandywine area. One-fifth of the respondents were uncertain or did not know, and another 6 percent said no one did. Government at all levels was mentioned by 52 percent of the respondents (planning/zoning, 28 percent; Board of Supervisors, 33 percent; county, 1 percent). The remainder of the respondents, approximately one-fifth, referred to non-government controls, primarily by landowners and private institutions.

When asked if growth should be controlled, the majority, more than three-fourths, felt that it should be. Opinions about who actually controls growth are compared with responses regarding who should control growth in Table 12.

TABLE 12

Opinions Regarding Who in Fact Does and Who Should Control Growth in the Brandywine Basin, 1971

Response	Actual Control		Who Should Control	
	No.	Percent*	No.	Percent*
No one	5	6.1	4	4.9
Planning/Zoning	23	28.0	12	14.6
Other Government	30	35.6	37	59.6
Landowners	11	13.4	4	4.9
"The People"	8	9.7	27	33.0
Other	6	7.3	3	3.7
Don't Know	16	19.5	7	8.5

* Percent column doesn't add to 100% because of multiple responses by some respondents.

The data show that fewer respondents favor control over growth by planning and zoning commissions and landowners than believe that these groups actually do control growth. On the other hand, more respondents prefer control by government (other than planning and zoning) and by "the people" than believe that these groups actually do have some control. In absolute terms, government (other than planning and zoning) and "the people" are most frequently preferred to control growth (60 and 33 percent respectively).

Respondents were also asked if they thought their local government was responding effectively to the challenges of growth and protection of environmental amenities.

Twenty-five percent of the people interviewed made negative references to the effectiveness of local government in meeting the challenges of growth and water protection. Some indicated reasons of corruption (5 percent), lack of concern (7 percent), or lack of enforcement (3 percent). Six percent of the people interviewed were undecided and 25 percent did not know if local government was effective or not. Only 45 percent of those interviewed felt that local government has been effective in meeting such challenges, some mentioning specifically sewage and water problems (13 percent), and re-zoning (22 percent).

What of mechanisms to deal with possible future problems before they arise? The following question was asked: "Should we set up mechanisms to deal with possible future problems or should we rather solve our problems as they arise?" Only half of those interviewed indicated that such mechanisms should be set up. Forty-three percent of the residents said that problems should be taken up as they arise.

Ultimately the researchers were interested in determining those specific means of controlling growth to achieve environmental objectives that were acceptable to the Brandywine residents. They were asked to respond to each of five possible means of control: no action, private agreements, zoning, easements, and eminent domain. (Table 13).

TABLE 13: Responses of Brandywine Residents to Five
Means of Development Control, 1971

							Compensable Regulation			
	No Action		Private Agreement		Zoning		Easements		Eminent Domain	
Response	#	%	#	%	#	%	#	%	#	%
Acceptable	9	11.0	28	34.1	65	79.2	21	25.6	11	13.4
Unacceptable	71	86.5	48	58.5	11	13.4	47	57.4	57	69.5
Undecided	2	2.5	4	4.9	2	2.5	7	8.5	8	9.8
Don't know	-	-	2	2.5	4	4.9	7	8.5	6	7.3
TOTAL	82	100	82	100	82	100	82	100	82	100

As the data show, approximately seven-eighths of the respondents felt that some action should be taken to control growth.

The private agreement mechanism was explained as a legally binding agreement between neighbors to restrict development in any way specified (such as deed restrictions). The majority of respondents found this to be unacceptable (58.5 percent). It evoked responses such as, "Here today, gone tomorrow," and "Only cause trouble, don't hold up." One respondent cited a case where neighbors agreed not to subdivide their land to less than four-acre lots. One party broke the agreement when he placed four houses on a lot without subdividing it. This is not technically legal; however, unless one is willing to enforce a private covenant, its power is nil. A substantial number of others (34.2 percent) felt it was a good mechanism. Some of these said it was the only way to control growth; others stated that it could be used in conjunction with the other mechanisms in order to best control growth.

Zoning was the most popular form of control on growth. Seventy-nine percent of the respondents indicated that they endorsed zoning. Many times, however, responses obtained were reluctant like "I suppose you need it." Early attempts to institute zoning had been met with opposition and long fights within the townships. Zoning now appears to be accepted as a fact of life.

Easements and eminent domain, both forms of compensated public regulations are the more controversial forms of control. The percentage of respondents willing to have easements was 25.6, while 13.4 percent were in favor of eminent domain. This appears to be where most residents draw the line as to what is acceptable--zoning being acceptable whereas the latter two are not.

Those who favored easements gave a greater number of favorable responses in general to the acceptability of the various mechanisms proposed by the question. It appears that these people were much more flexible about the land use controls that they were willing to accept than those who were opposed to easements.

Reaction to the Plan and its Impact on Attitudes

The Brandywine Plan was not merely an attempt to utilize innovative land use controls in order to protect water resources; it was also an effort to educate the community in the use of conservation easements as a way to insure sound development in the context of water resources planning. As an educational process, the Plan was presented to the community in a number of ways.

In addition to personal visits to some residents' homes, the Plan was covered by all the local newspapers and radio station WCOJ, and presented in public meetings in each township. All landowners in the watershed received three publications: a copy of the Watershed News which included a five-page supplement answering questions on the Plan; a 50-page copy of the "Preliminary Plan and Program" which included a map of each landowner's own property; and a booklet entitled "The Brandywine Plan," a 28-page summary of the final plan to be voted on.

No vote was ever taken; the Plan was literally shouted down at several public meetings. Although it was evident that there was substantial opposition to it, it was not at all clear at that time why the Plan failed to be adopted. This section of the report undertakes to examine this question. It also attempts to assess what impact the Plan may have had, despite its failure.

The first task was to determine how well Brandywine residents understood the Plan. In this regard, three questions were asked: "Who proposed the Plan?"; "What was your understanding then of what was being proposed for the future of the area?"; and "How were these proposals to be achieved?".

The responses revealed that there was great confusion and misunderstanding about who was sponsoring the plan. Over one-half had no idea who proposed the Plan and only one-fifth answered correctly. The fact that so many persons did not know who was advocating the Plan may have been a factor in their distrust of it.

Although no one fully stated the major principles of the project, approximately one-third of the sample knew that one of the goals was the preservation of water resources, and one-twelfth mentioned preservation of open spaces. More respondents answered in terms of the specific proposals. Half of the interviewees could describe them with varying degrees of completeness, with 20 percent of the sample mentioning only that the Plan restricted building near the creek, 16 percent indicating greater understanding, and 14 percent of the sample revealing full understanding of the Plan's proposals. On the negative side, one-fifth of the sample had never heard of the Plan. Almost one-half of the sample did not understand the proposal at all.

There were two variables which were related to understanding of the Plan. The following categories used to guage understanding were tested against educational level and amount of land owned.

1. No mention of restricted building; plan for conservation; in general, little grasp of the proposals.

2. Restrictions on building near the creek.

3. Restrictions on building and details.

4. Full understanding.

A chi-square test indicated that there was a significant relationship between amount of formal education attained and understanding of the Plan, with understanding increasing as educational level rises. (Table 14)

TABLE 14: Understanding of the Plan by Level of Education, 1971

Understanding of Plan	Education Level Attended Elem. School #	%	Attended High School #	%	Attended College #	%
1	6	50	20	54	7	35
2	3	25	5	13	4	20
3	2	17	11	30	2	10
4	1	8	1	3	7	35
TOTAL	12	100	37	100	20	100

The amount of land a person owned was also significantly related to understanding of the Plan. Almost 90 percent of those who understood the Plan very well owned more than ten acres of land, whereas only 26 percent of all landowners owned parcels that large. Perhaps the fact that a large number of small landowners did not understand the Plan can be partially accounted for by recalling that those with just a residential plot of one acre or less were not to be affected by the proposed restrictions. Those unaffected had less of a stake in the Plan, and, therefore, perhaps less interest in it. (See Table 15)

The third question on understanding of the Plan concerned implementation of the project--how were the proposals to

TABLE 15: Understanding of the Plan by Amount of Land Owned, 1971

Understanding of Plan	Amount of land owned in acres					
	Under 2 acres		2-10 acres		Over 10 acres	
	#	%	#	%	#	%
1	21	64	8	44	4	22
2	8	24	1	6	3	17
3	4	12	8	44	3	17
4	0	0	1	6	8	44
TOTAL	33	100	18	100	18	100

be achieved. Only two persons from the entire sample could give an adequate explanation of the implementation process which included the knowledge that conservation easements were to be placed on properties only if 80 percent of the landowners in a sub-basin agreed and that eminent domain was not a part of the Plan. Although almost half the respondents knew that easements were to be used, as many had no idea how the Plan was to be implemented, and only three persons said that the Plan was to be voluntary. In fact, over twice as many persons thought that the Plan was to be implemented by force (comments often ran "they were going to take your land and do what they wanted with it"). It is impossible to tell from the responses whether this misunderstanding is due to the fact that the concept of voluntary easements was not presented clearly to UEB residents or that the landowners heard the word "voluntary" but never believed it. The belief that eminent domain would be used was not restricted to those who did not understand the Plan. Of the interviewees who thought that eminent domain was to be used, as many understood the Plan as did not.

Respondents were asked in two ways to state why they supported or opposed the Plan. Because we thought persons might be reluctant to speak about personal reasons for opposition, they were asked first how others in the watershed felt about it. Then they were asked directly how they personally felt about the Plan. In analyzing reasons for support or opposition to the Plan, responses from both questions were coded together to yield a general picture of the relative importance of the various reasons for support and opposition (See Table 16).

When asked why supporters of the Plan did so, a large proportion had no idea. Often people stated that they did not know anyone was for it, indicating perhaps the scarcity of supporters, but, more importantly, the lack of vocal supporters. A few respondents said they thought the Plan sounded like a good idea, but community pressure kept them silent on the subject and often even helped them to change their minds. Of those who ventured an opinion as to why people supported the Plan, about half of them stated that it was because of conservation, of water and/or open space. The other 10 percent of those responding attributed various motives to supporters, including the following responses: (1) the authorities supported it, not the people; (2) for money, and (3) because they had nothing to lose; they were unaffected.

Respondents were much more vocal and explicit about reasons for opposition to the Plan. By far the most frequently given reason was distrust and/or dislike of easements on their property. Another set of objections related to the problem of taxes. People were not clear about exactly what would happen to the taxes on a parcel of property under an easement. Some respondents expressed displeasure at the voluntary aspects of the Plan, and insisted that if easements were to be fair to everyone, eminent domain was an essential tool. It was felt that otherwise one landowner could hold out until all the surrounding properties were under easements, and then sell his parcel for a large profit and at the expense of the other landowners.

After opposition to easements, the next most frequently mentioned group of reasons for opposing the Plan could be categorized under distrust of the proponents and future

TABLE 16: Reasons for Support and Opposition to the Plan

A. Reasons for Support

Response	#	% of sample
The authorities supported the Plan, not the people	[illegible]	4
To conserve water resources, open space	33	48
For monetary reasons--they would profit from the Plan	2	3
Those who supported it had nothing to lose	3	4
Don't know why people supported it	29	42
TOTAL	90	

B. Reasons for Opposition

Response	#	% of sample
Plan came at the same time as several other unpopular projects	4	6
For monetary reasons--inadequate compensation, inability to make money off of land under easements	10	14
Distrust of those presenting the Plan; dishonest intent and presentation of Plan; pressure from proponents of Plan	15	22
Plan would benefit persons other than the residents	3	4
Selective restriction of easements--affects people unequally, tax burden on community	10	14
Fear of enacting Plan without adequate knowledge of effects, compensation, enforcement	6	9
Outsiders telling us what to do	13	19
Easements--loss of clear title to land; loss of full control over use of land	31	45
No plan necessary; we would not destroy environment anyway	2	3
Eminent domain	8	12
High density housing; poor people to watershed	2	3
Don't know	17	25
TOTAL	127	

administrators of the Plan. One-fifth of the respondents felt that the presentation and intent of the Plan itself was dishonest, and that UEB residents were being railroaded. Along with the fact that people felt deceived and pressured, area residents also often resented the fact that it was "outsiders telling them what to do." One frequently mentioned reason for opposition among those who understood the Plan well was that not enough was known about its possible effects on the area or how the Plan was to be enforced. The fact that Plan proponents sometimes gave inconsistent answers to crucial questions concerning compensation and use of restricted land by Brandywine residents only heightened this fear. They saw the Plan as an experiment, the results of which were uncertain.

The Plan was ultimately defeated without ever having been put to a vote. The previous section discussed reasons why the Plan was dropped; it did not reveal how close or far the project was from actual acceptance. In order to more accurately assess support for the Plan, the interviewees were asked directly what their position on the Plan was. The data (Table 17) show that of those persons who took a stand, they were two to one against the Plan.

TABLE 17: Response to the Plan by Brandywine Residents

Response	No. of Persons	Percent of Sample
Supported	15	22
Opposed	29	42
Undecided	9	13
Don't know	16	24
Total	69	100

In an attempt to discover which respondent characteristics were associated with support of the Plan and which with opposition to it, response to the Plan was cross-tablulated with the following variables: (1) whether the individual was affected by the Plan or not, (2) income, (3) where the person grew up, (4) land tenure in the basin, (5) length of time in present home, (6) amount of land owned, (7) education, (8) understanding of the Plan, and (9) familiarity with conservation easements.

Among these variables, the perception of being affected by the Plan, large landholdings and high school rather than college education were associated with opposition to the Plan. Familiarity with conservation easements was the only variable associated with support for the Plan. No consistent relationship was found between the other variables and position taken on the Plan.

The exact impact of the Plan upon residents of the Upper East Branch of the Brandywine watershed proved difficult to assess. There are two major problems in any attempt to make such a determination: (1) the fact that the Plan was never implemented and (2) confusion of the effects of the project with other influences. The first problem is rather obvious because the project was not able to go beyond the community education stage; we can only view its introduction to the area as a catalyst to citizen participation in projects of similar concerns or to support of official action on environmental issues taken subsequent to the rejection of the Plan. The second difficulty is the assignment of responsibility for a measured change; for instance, the Plan was introduced just prior to mass public exposure to ecological concerns. Therefore, in an attempt to measure the impact of the project upon citizen awareness of environmental problems and action taken to protect the environment, the influence of the Plan could be confused with the effect of the national ecology movement. Both of these problems were approached by a series of direct questions concerned with the Plan's impact.

Respondents were asked if they thought the Brandywine planning experience had any impact on their environmental awareness, any actions taken to protect the natural environment, organizations in the community, actions of local governments or other or no effects. Responses were analyzed only for landowners.

Approximately half of those who knew about the Plan said that it had a positive impact upon their awareness of the environment and the importance of protecting it. The overwhelming majority (85 percent) of those who knew of the Plan said it had no effect upon their actions to protect the natural environment. We asked a control question to determine how many individuals ever really take an active role in protecting the natural environment. Two-thirds of our sample did nothing beyond "maintain" their own property (Table 18). When questioned about the impact of

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TABLE 18: Actions taken by Brandywine Residents to Protect their Environment, 1971

	All Residents (N=82)		Landowners (N=69)		Landowners Familiar with the Plan (N=53)	
Response	#	%	#	%	#	%
Nothing	35	43	28	37	19	32
Maintain own property	25	30	22	29	15	25
Action as a result of ecology-wildlife protection movement	17	21	14	19	14	24
Community organization -conservation clubs -court action -active organizing	8	10	7	9	7	12
Engaged in planning	4	5	4	5	4	7
TOTAL	89	-	75	-	59	-

the project on the actions of local government 26 percent of those who knew of the Plan indicated that it had a positive impact. However, it is difficult to assign any meaning to that figure. Many individuals we interviewed showed a lack of knowledge of what township government was doing in general.

To summarize the results of the question directed at interviewee appraisal of the impact of the Brandywine Project, responses were mixed as to successes and failures. By far the greatest long-term impact indicated was upon the expressed awareness, on the part of UEB citizens, of the environment and the importance of protecting it. The Plan made inroads, but it was neither extensive nor intensive enough to make any changes in what citizens were actually willing to do to protect their natural resources. Although citizens are now more aware of the importance of protecting the natural environment and because of the Plan have greater knowledge of the means of doing so, the picture of need for the Plan presented by its proponents was seemingly not effective enough to encourage further action.

Summary and Conclusions

The Brandywine Project planners saw a critical relationship between normal development and damage to water quality, beauty and other natural resources of an area like the UEB. Despite possible harm to the natural environment the proponents of the Plan did not take the view that all growth should be prohibited. Rather, they held that allowing unrestricted development is ultimately more costly than protecting water quality, and that it would be worth public expenditure to ensure that this growth would have minimal ill effects on the natural environment.

The UEB community was in substantial agreement with the water resourcesgoals of the Plan. They too wanted to maintain the beauty of the area and its water resources. They were, however, ambivalent about growth of the area. Survey respondents were sensitive to the prospect of substantial changes in the present growth patterns. They perceived that the area was changing steadily but slowly; most persons saw growth as inevitable, but no immediate threat was felt by the community.

Efforts by proponents of the Plan to educate the watershed population to the damaging effects of urban sprawl were, in effect, attempts to convert potential dissatisfaction into positive action by the UEB community.

When the Brandywine Plan was proposed, the UEB was fragmented, with many community centers. Inhabitants identified with a particular center rather than with a local unit of government, i.e. the township. Local government was weak, and previous attempts by the townships to increase their control over land development through zoning had met with strenuous opposition. When the Plan was proposed, only three towns had zoning ordinances. Many landowners considered themselves the best guardians of the environment and saw no need for the course of action proposed by the Plan.

By 1971 most residents who were anxious to protect the area from the undesirable effects of encroaching growth, came to rely upon the new forms of control that the townships had assumed. In direct contrast to the local method of handling problems at the township level--as they arise--environmental problems posed by the Plan required preventive action at a regional level. In this regard, not only did the planners have to contend with a multi-centered community, they had to unite the existing political jurisdictions (townships) within the watershed as well.

Despite the local ties established by the planners, residents remained suspicious of the project planners' motives. They were "outsiders," and, as such, residents felt they must have had someone else's welfare in mind.

Perhaps partly because of a misunderstanding of the preventive nature of the Plan, and partly because they were unwilling to adopt new and unfamiliar land use controls, watershed residents felt that the most appropriate method for the task of controlling growth is zoning--a method approved by 72 percent of the UEB residents. Most of the watershed is zoned for two-acre farm-residential.

Brandywine planners felt that large-lot indiscriminate zoning was an illegal and ineffective method both for directing growth and for protecting water resources. Zoning was easily changed and provided no guarantees that development would not occur in ecologically sensitive areas. In order to be effective enough to protect such areas, permanent restrictions on building were deemed necessary to protect natural resources from harm due to development. The stringency and permanency of the controls that were necessary to "do the job" raised questions of fairness, if not of constitutionality, which project planners felt warranted compensation to those property owners who would have been affected. Conservation easements were chosen as the tool capable of handling these problems. The benefit of the use of conservation easements was that it was less costly to the public and still provided a means of compensating property owners; public ownership was not a necessary prerequisite to control.

Acceptance of conservation easements by watershed residents faced three hurdles: (1) negative experience of the UEB community with eminent domain plus the fact that this control is often associated with easements in residents' minds; (2) its seeming benefit to many at the expense of a few; and (3) most importantly, residents' dislike of outsiders telling them what they could and could not do with their land.

Although Brandywine planners say the Plan as "voluntary," local residents saw the Plan's presentation as an inflexible "given," presented from the "outside." From the residents' perspective, "voluntary" meant more than just acceptance or rejection of the Plan; it meant that the community would have a say in the Plan's proposals. Because there was little give-and-take in the presentation of the Plan, most residents did not feel that they had any role to play in the project beyond casting a vote for a proposal handed down to them. Many residents felt that crucial questions had never been answered: Who would hold the easements? How could they be sure that more would not be done than they had contracted for? How could they be assured that some would not profit from the Plan while others lost? Would they have to contend with petty bureaucrats every time they wanted to do something with their land? Was not the uniform application of restrictions to widely divergent types of properties unfair to many landowners?

Recognizing that realistic discussion of alternatives is often extremely difficult with persons who are going to be so directly affected by a plan such as this one, we can only speculate that presentation of alternatives rather than of a fixed plan might be a better strategy to use to gain acceptance for a voluntary plan. Before holding public meetings, it might be beneficial to discuss alternatives and possible strategies, to a larger extent than was done in the Brandywine Project, with a small group of community leaders and long-time residents who are often powerful voices in a community where government is still relatively weak.

Since the Plan was not implemented in the Brandywine, a significant question remains: would it be possible to implement such a plan at another time, in another place? Reasons for opposition have already been examined, and these point to some suggestions for future planning efforts of this nature. First, it seems that the planners were right in desiring a site where there were no other major stream works which involved the taking of land. A project such as this is likely to evoke feelings that the Plan is not devised to benefit the community for which it is intended--one of the many times that a higher level of government appears to be disrupting the status quo. Second, if such a plan is to be voluntary, it must actively seek community participation in the entire planning process. With respect to strategy, the question of timing is a third critical problem. The Brandywine Project had to present many difficult concepts of land planning in a relatively brief period of time.

In order to make suggestions for the direction of future planning efforts, we had hoped to be able to distinguish any social or demographic characteristics which could be associated with a predilection to accept the concepts of the Brandywine Plan. The failure of attitudes toward the Plan to correlate with almost all of these characteristics was disappointing. It was found, however, that small landowners and those who were not directly affected by the Plan were those most in favor of the Plan. The project failed to reach its most important prospective beneficiaries--the large landowners--and was unsuccessful in gaining the support of those it did reach. Opposition to easements as a mechanism to control growth crossed all social and demographic lines and was in general so strong that it seemed to override all other factors. In the view of the majority of Brandywine residents, the property rights of individual landowners superceded the need for collective action in the form of easements which would restrict those rights.

PART B. PUBLIC REGULATORY AND LESS-THAN-FEE CONTROLS

Political acceptance was the cornerstone of a successful plan, and in this the planners failed. Two critical observations, common to the Brandywine and other urbanizing areas, are central to the problem of political acceptance. First, most of the people for whom a rural area is being planned--the future residents--are not there to participate in the planning and decision process. Second, many of the present residents equate urbanization with deterioration and so tend to reject any urbanization plan as worse than present conditions. These observations lead to the question of what is the most democratic way of making decisions about the future use of urban fringe land. This question is, in turn, linked inevitably to the question of how the profits from development of this land should be distributed. Our experience in the Brandywine, combined with our prior and subsequent experiences, have shaped our response to these questions.

The response, in brief, is that the people to be served must be represented in the planning process. They have not been, and are most unlikely to be represented with decisions on future, urban fringe development made by the local municipality. Responsibility for such decisions must be placed at the regional level in order to serve more than the narrow interests of current urban fringe residents.

Our conviction, post-Brandywine, that one could not reasonably expect local government to enact the type of land use control programs which we had proposed led to several related questions: (1) what might one anticipate that local governments--municipal and county--would be willing to enact to protect the environment; (2) in what direction are the states moving and with what portents for future state or regional action; and (3) how does federal tax law affect the use of easements? These questions provide the focus for the discussions in Part B.

SECTION VI

MUNICIPAL REGULATIONS

Our timing in the Brandywine was somewhat premature, in that in the intervening years a number of courts, including the Supreme Court of Pennsylvania, have acted as we predicted. They have held that forms of regulation such as large lot or marshland zoning are unconstitutional because they fail to provide compensation to the landowner for his loss of development rights.

There are, however, regulatory actions which local governments can take to protect water resources. In cooperation with The Tri-County Conservancy, a civic organization active in the lower Brandywine valley, we have been working with municipalities on such regulatory programs. One township and one county have enacted planned unit development ordinances under which it will be possible for the planning commissions to encourage development compatible with the dictates of a given site. Other municipalities are considering similar ordinances. Another township has enacted a flood plain zoning ordinance, and this ordinance has engendered considerable interest in other townships. Erosion control ordinances also are likely to meet with widespread acceptance. The discussion in this section is limited to flood plain regulation.

Flood Plain Regulation

Flood plains are those areas of land, adjacent to bodies of water, which are occasionally inundated by flood waters. Approximately six percent of the land of the United States lies in flood plains. More and more of this land has been built on, resulting in rising losses from flood damage. As the flood plain is filled and built up, the flood waters are constricted and forced elsewhere, at high velocity and with great potential for harm to people and property.

Back in 1936, the federal government began building dams and levees and straightening stream channels with the intent of reducing flood losses, which then were 100 million

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dollars per year. This approach to the problem of flood losses has been a colossal failure, largely because development in flood plains was allowed to continue. The program has had unfortunate ecological consequences as well.

By 1966 the federal government had spent over seven billion dollars, and was then spending 500 million dollars per year, to control flooding. Yet flood damages had risen to one billion dollars per year, ten times what they were when the federal flood control program began.

In addition, people have realized that it is sensible to keep flood plains in their natural condition so that they can fulfill their prime function of flood water storage. Local regulation of flood plain use, developing state laws, and the new federal Flood Insurance Program all point in this direction.

The Brandywine planners, after rejection of the Brandywine Plan, prepared a model flood plain ordinance which could be enacted by local municipalities. In addition, a review was conducted of state, regional, and federal roles in flood plain regulation as well as judicial decisions concerning this type of regulation.

The State Role--Pennsylvania

Two bills, now before the Pennsylvania legislature, would, if passed, alter the present role of the municipalities in flood plain management.

Senate Bill 14 would authorize counties of the third through eighth classes (including Chester County) to use eminent domain to acquire land or interests in land for flood prevention or control. This bill would have only a minor effect on existing municipal-county relationships for flood management, since the addition of the power of eminent domain would be the only change in the existing County Code.

Senate Bill 1059, titled Pennsylvania Flood Plain Management Law, would bring about major changes. It would place primary responsibility for management of flood plain use at the state level with the Department of Environmental Resources. It would also impose responsibilities on the municipalities. Essentially, the law would work as follows:

(1) the Department of Environmental Resources would adopt regulations stating how flood plains are to be designated;

(2) the Department would adopt standards governing use of all flood plains, in accord with criteria on permitted uses set out in S.B. 1059;

(3) the Department would enact regulations providing for management of flood plains;

(4) all municipalities, within one year of Department adoption of the above regulations, would be required to provide the Department with maps designating their flood plains, with plans for flood plain management, and, if desired, with standards more restrictive than the state's standards;

(5) anyone wishing to build in the flood plain would be required to obtain a permit from the municipality, with the municipality's decision subject to appeal to the Department; and

(6) enforcement would be the responsibility of the Department.

Thus, if this bill is enacted, all flood plains in the state will be subject to management to reduce flood damage. The state and the municipalities would be partners, with the state bearing the major responsibility, in this management program.

Regional Action: The Delaware River Basin Commission

In 1971, the Delaware River Basin Commission adopted a resolution amending the DRBC Comprehensive Plan and Rules of Practice and Procedure to achieve greater protection of flood plains. This amendment to the Comprehensive Plan committed the DRBC to adopt standards for use of the 100-

year flood plain and provided that "Any project substantially encroaching..." on this flood plain shall conform with the use standards and with applicable state or local flood plain regulations. The DRBC will rely on local government, soil conservation districts, and watershed and conservation associations to notify it of pending development in flood plains.

The Federal Role: National Flood Insurance

The National Flood Insurance Program (P.L. 91-152) provides for federal subsidy of flood insurance on some buildings already built in flood or mud slide prone areas. Currently eligible are residences of from one to four units and small businesses located within areas flooded with the frequency of once in 100 years. The maximum dollar value insurable is $35,000 for single-family houses, $60,000 for all other eligible structures, and $10,000 for the contents of any eligible structure. The federal subsidy will be approximately 90 percent of the cost of the insurance.

Landowners buy the insurance and are protected under the Act. However, they are not eligible unless their municipality participates in the program. Basically this means enacting municipal regulations which stringently limit future development in the flood plain.

For those municipalities which do not have flood plain regulations that meet the standards of the federal act, the next step is to adopt such regulations. The area flooded by a storm of once in 100 years' frequency is the area to be subject to regulation. The municipalities may use the alluvial soils maps of the Soil Conservation Service, at least on an interim basis, to delineate the flood plain, or maps delineating areas flooded with a 100-year frequency which are prepared by the Corps of Engineers.

The municipality must then adopt regulations which bar most further growth in the flood plain, except on a showing that this would ". . . unreasonably curtail its future growth and vitality." In no case may modifications to existing structures, fill, or new development cause, at any point, an increase of more than one foot in the level of the 100-year flood. The municipality must also provide for enforcement of its regulations. Both the land use controls and the enforcement provisions must be reviewed by the state--in Pennsylvania, the Department of Community affairs--and approved by the Federal Insurance Administration.

Court Decisions Concerning Flood Plain Regulation

There are three principal justifications for flood plain regulation: permitting individual landowners to build as they wish (1) results in development which obstructs the flow of flood waters and causes damage to others; (2) leads to the need for expensive public works; and (3) makes it likely that purchasers of this development will be unwitting victims of flood damage. The decisions of a number of courts have been based upon acceptance of one or more of these arguments as justifying regulation to promote the public health, safety, and welfare.

Courts judge regulations in the context of the particular circumstances. If the severity of the regulation of the property owner is so great as to destroy any reasonable return from the land or if the benefits to others from the regulation are minimal, a court is likely to find the regulation unconstitutional in that fact situation.

Illustrative of this is the action of the Common Pleas Court of Montgomery County in Pennsylvania's only two flood plain zoning decisions. Both cases arose in Whitemarsh Township. In the first (Hofkin v. Whitemarsh Township Zoning Board of Adjustment, 88 Montg. 68, 42 D&C 2d 417 (C.P. 1967)) the Court held the Whitemarsh ordinance unconstitutional as it related to the property in question and further held that the property reverted to its prior zoning. The Court's reasoning was that the township had created the particular flood plain by building a road with too small a culvert to drain storm waters. In the subsequent decision (Solomon v. Zoning Board of Adjustment of Whitemarsh Township, No. 68-8718 (C. P. Montg. Co., Pa. Dec. 29, 1969)) the amended Whitemarsh ordinance was sustained as promoting public health, safety, and welfare by preventing expensive public works or disaster relief. The property in question had been mapped by the Corps of Engineers as within the 50-year flood frequency area and had, in fact, been flooded seven times in two years. This fact distinguished it from the previous case, as did the fact that the owners were not deprived of reasonable use of their land by the zoning. While these two decisions are not binding on other counties in Pennsylvania, they provide quidelines which are likely to be followed.

A number of other state courts (City of Welch v. Mitchell, 121 SE 165 (W. Va. 1924); American Land Co. V. Keene, 41 F2d 484, (1st Cir., 1930); McCarthy v. City of Manhattan Beach, 41 Cal. 2nd 879, 264 P2d 932 (1953); cert. den. 348 U.S. 817 (1954); Vartelas v. Water Resources Commission, 146 Conn. 650, 153 A2d 822 (1959); Speigle v. Beach Haven, 46 NJ 479, 218 A2d 129 (1966); and Turnpike Realty Co. v. Town of Dedham, 284 N.E. 2d 891 (1972)) have sustained regulations severely limiting use of flood plains or beaches subject to frequent flooding. In each case the court has looked at the reasonableness of the ordinance in relation to the particular facts and has found that protection of the public health, safety, and welfare takes precedence over the burden on the individual landowners. There are however, a few decisions holding to the contrary. In Connecticut, for instance, after sustaining, in Vartelas, a state refusal to permit construction of a particular building in a flood channel, the court held invalid a township zoning ordinance reclassifying land from residential to flood plain because it permitted the complaining landowner no reasonable use of the land and caused a 75 percent drop in the land's value (Dooley v. Town Plan and Zoning Commission, 151 Conn. 304, 197 A2d 770 (1964)).There are a number of marsh zoning cases which reach a similar conclusion.(See particularly Morris County Land Improvement Co. v. Township of Parsippany-Troy Hills, 40 N.J. 539, 193 A2d 232 (1963).)

If but a moderate portion of a landowner's property falls within the flood plain--as would be true in almost all instances in the Tri-County area--restrictive flood plain regulation is likely to be sustained because the landowner can obtain a reasonable return from the remainder of the property. However, since courts decide the validity of regulations on a case by case basis, it is important to permit the municipalities some discretion in fact situations which present a hardship.

SECTION VII

LESS-THAN-FEE CONTROLS

Acquisition of less than the full fee interest in land is a technique which only recently has been employed by public agencies to aid in the preservation of our natural resources. This section is concerned with three different aspects or developments in the use of this type of control mechanism by governments. Two of these developments are examined through case studies of actual experience with less-than-fee land controls. The first, that of Bucks County, Pennsylvania, evaluates the administrative and political problems which surrounded the use of flooding and conservation easements around a reservoir. The second is concerned with recent developments at the state level, and evaluates the experience of eight different states. The final aspect covered is that of condemnation of real property previously devoted to public use, with the focus on conservation easements. For a complete exposition of the findings of these studies, the reader should refer to the reports of Slade, Ball, and Hillsberg (A) listed in the Appendix.

A Case Study of the Bucks County Easements Experience

Bucks County, in the Philadelphia metropolitan area, was the first county to use the less-than-fee law which was drafted as part of the Brandywine Plan. Bucks County acquired both flooding and conservation easements around one of the reservoirs being built under Pennsylvania's Small Watershed Program. Because the law was new and because easements have been used infrequently for water resource protection, the researchers were particularly anxious to document the Bucks County experience.

The county developed detailed procedures for negotiating the easement acquisition and carried them out with great success. Despite an initial landowner response to the program which was very similar to the response in the Brandywine, the county proceeded. When the landowners approached first refused to sell easements, the county moved to condemn entire properties in fee. One landowner filed suit to challenge the law's constitutionality but later dropped the proceedings. Gradually, as people recognized the county's determination, more and more voluntarily sold easements. By the conclusion of the program, half of the landowners had negotiated easement agreements and half had insisted on county condemnation. All properties acquired in fee by the county were, by law, required to be resold subject to flooding and/or conservation easements.

In the creation of the Neshaminy Water Resources Authority, Bucks County undertook and in three years brought nearly to fruition the planning and acquisition phases of a complete, well planned, well thought out program for integrated water supply, water quality control, conservation, recreation and flood control on a creek which drains nearly 40 percent of the county's total territory. Bucks is part of the metropolitan Philadelphia area and is experiencing and will continue to experience rapid growth. In the late 1950's, in recognition of the increasing land pressures, Bucks undertook a Master Plan for Water Supply and Sewage Facilities which was completed in 1960 and which projected public water and sewer facility needs to 1965, 1980 and 2010. In order to implement the Master Plan for Water and Sewerage, the Bucks County Commissioners created in 1962 the Bucks County Water and Sewer Authority. This Authority has had as its main purpose assisting local municipalities in solving their water supply and sewage disposal problems by various methods of inter-municipal agreements, in which the County Authority in general has assumed the role of financing, constructing and operating regional systems. Also in 1962, the Bucks and Montgomery County Commissioners, their Soil and Water Conservation Districts and the Soil Conservation Service, USDA, began formulating a detailed plan for the conservation and orderly development of the water resources of the Neshaminy Creek Basin. This study was cosponsored by 36 municipalities in the watershed and, in all, forty-two federal, state and county agencies participated in the study.

The end result was a plan for the conservation of the water resources of the basin, presented to the sponsors in 1966. Out of this planning grew the Neshaminy Creek Water Resources Development Program with the announced aims and specific purposes of improvement of water quality, assurance of adequate water supply, flood control, conservation and recreation. In May of 1966, agreements were signed looking to implementation of the study with Bucks County assuming the largest share of the financing.

The Bucks County Commissioners having committed themselves to the program, created in 1966 the Neshaminy Water Resources Authority, a financing Authority which, on January 18, 1967, agreed on a financial proposal for implementation of the program and on March 1, 1967, floated an eight million dollar bond issue for land acquisition and project engineering. The total program cost will eventually be 35 million dollars with Bucks, through the Authority, paying all land acquisition costs and the Soil Conservation Service paying all costs of flood control engineering and construction. Bucks assumed cost responsibility for engineering and construction of water supply. The venture is unprecedented in size; no other county in the Commonwealth has undertaken a conservation program of this magnitude. The Authority has no staff of its own; its Executive Director also serves as Director of the Division of Natural Resources of the Bucks County Planning Commission. Functioning as a financing agency and utilizing the staff of the Division of Natural Resources, the Authority acquires the properties necessary for the program and leases them to the county. The Natural Resources Division manages,on the county's behalf, the acquired properties pending actual physical construction of the dams and parks involved.

The Authority was intended to take advantage of newly enacted legislation in Pennsylvania known as Act 442. Act 442 was designed "to clarify and broaden the existing methods by which the Commonwealth may preserve land in or acquire land for open space uses...to meet needs for recreation, amenity and conservation of natural resources...including...a pure and adequate water supply." In outline, the Act provides: that where the Commonwealth or a county develops a plan for open space uses in a resource,recreation or land use plan, it shall thereafter designate the property involved for open space use; that a public hearing pursuant to public notice with specific notice to all property owners directly involved and to municipalities affected shall be held at which hearing there shall be set forth the interests to be taken and their proposed open space benefits; that less than fee interests may be acquired; that where the owner of property sought to be acquired by the county prefers that a fee rather than an easement be taken, the county shall be required to take the fee; and that where fee simple titles are acquired, the county shall offer for sale the fees subject to restrictive covenants or easements limiting the land to open space uses, such offer of resale to be made within two years of acquisition.

The easement is, of course, the heart of Act 442. As tailored by the Natural Resources staff to fit both the Act and the requirements of the program, it consists of two separate and distinct items. Beginning with the stream bed and on the basis of surveys, the staff divided the land abutting the stream into that portion of the abutting property which would form part of the permanent pool if the land was to be included in a permanent pool; that portion of the property lying above the level of the permanent pool and extending up to the elevation of the top of the dam, known as Parcel A and subject to occasional flooding plus certain restrictions for dam and water supply protection; and the remainder of the particular abutting property known as Parcel B and subject to conservation easement. The conservation easement whether negotiated or condemned as an easement or to be impressed on the property upon resale after condemnation of the fee, contains in each case the following provisions:

1. Agricultural use of the property must be in accordance with an approved conservation plan.
2. Soil erosion shall be limited to less than three tons per acre per year.
3. Land subject to easement shall be kept under cover except for periods of tillage.
4. Impervious cover is limited to 15 percent.

Although Act 442 does not specify whether, if only a portion of a particular piece of property is necessary to effectuate the purposes of the Act the county may or shall acquire all of any specific piece of property or just that portion which is necessary to be placed under easement, the Bucks County staff has construed the Act as authorizing the acquisition of the entire piece of property. This choice undoubtedly simplified the acquisition process and rendered the appraisal and survey processes more manageable. It also has the obvious effect of bringing a much larger acreage under conservation easements.

The Neshaminy Program affords an excellent illustration of the intelligent use of legislative tools toward environmental protection. The effort and the thought expended on the program have produced and will produce positive results which could be replicated elsewhere. Those who would initiate similar programs might well benefit from a close study of the program and a careful examination of the pitfalls which it has, so far, largely avoided.

The single largest problem in conducting the easement acquisition program has, in the case of the Neshaminy project, proved to be the appraisal of easements. For the future, and until such time as there is more learning on the subject, the experience gleaned from the project may offer some guidelines if not solutions for appraisal problems in similar programs. Chief among these is that appraisals which are to form the basis for offers for the sale of easements must bear some reasonable relationship to the value of the property as a whole. Since the conservation easement is going to be impressed upon the entire parcel, its value, whether or not it --or the applicable zoning by itself--inhibits further development, cannot be said to be de minimis. Certainly, in the mind of the landowner, it is not de minimis and experience has shown that three percent or four percent or even in some cases ten percent valuations for conservation easements have resulted in demands for fee takings. The conservation easement when combined with a flooding easement should bear an even more substantial relationship to the value of the entire property since the flooding easement most assuredly does prevent further development even on a property which is not subdividable.

Finally, those appraising proposed land acquisitions must be so trained and instructed as to conduct their appraisals with a minimum of contact with and annoyance to the involved landowners. It is the appraiser's function only to form an estimate of value. It is the negotiator who must bargain.

In Bucks County easement costs approximated 50 percent of fee value for the flooding easements and between 10 and 15 percent of fee value for the conservation easements. Early offers of 3 to 4 percent of fee value for conservation easements met with rejection and forced the county to condemnation. The experience in Bucks County demonstrated convincingly the feasibility of the less-than-fee approach to land use controls and provided some needed practical experience.

Eight States' Programs

In the late 1960's a number of states recognized that they must act directly, rather than through enabling laws for local government, to protect critical natural areas. Since the new state laws and resulting programs paralleled conclusions reached in the Brandywine experience, the researchers sought to learn how effective they were proving.

They began by contacting all states known to have recently launched land use control programs for resource protection. After initial correspondence and conversation, it was concluded that eight states' programs were far enough advanced and of sufficient interest to warrant an on-site visit and discussions. These states were Virginia, Massachusetts, Connecticut, Maryland, California, Washington, Maine, and Wisconsin.

Although there is considerable variation in the directions that these states are taking, there are enough common threads to allow some generalization. The two principal areas of state action were preferential assessment and wetland, shoreline, and flood plain control.

Preferential assessment has met with popular acceptance but has had only limited success in realizing the objective of resource protection. Early constitutional problems have been largely overcome, either by legal drafting or constitutional amendment, but, since the preferential assessment programs are voluntary in nature and binding for limited periods only, their effect has been to give the landowner a tax break until he is ready to develop.

State controls on water-related lands have a far more promising future. They are undergoing the birth pangs of sloppily drafted regulations, inadequate financing, and adverse lower court decisions. Once the states recognize that they can't get something for nothing and begin funding the programs sufficiently so that landowners are paid fairly for loss in development value, the programs should provide cohesive, large-scale control over many lands critical to water resource protection.

The most important action for states to take at this time is to ensure that land use planning functions are tied to effective land use control techniques. The necessity for relating control and planning may lead to taking traditionally local control activities out of the hands of local officials; or it may mean that the state must set up land use control policies and guidelines for local governments to follow, accompanied by some sort of enforcement plan to ensure compliance with such guidelines. Also, officials at all levels of government must come to the realization that there are critical land use control activities which transcend the boundaries of many local governments.

It must become apparent that "the public" served or affected by a governmental policy or action varies greatly with the nature of the policy or action and the level of the government carrying out such policies: e.g., one county government's program may affect the public of a neighboring county. The politics, program and the public served by any given program must be made to mesh. Further, many local governments must come to the realization that there are many technical questions which arise in the practice of land use control which surpass the competence and skill of most local government officials. This last consideration inevitably leads to difficulties: local people rarely embrace with gusto the advice of outside experts from a distant state capital.

Condemnation of Real Property Previously Devoted to Public Use

Once conservation easements have been acquired by a public agency, the question will often arise as to just how permanent an interest it is, and whether or not other public agencies can take, alter, or impair the conservation rights acquired by the initial agency.

Alternatively, there may be a desire to purchase and hold a conservation easement on land already devoted to public use in an effort to preserve for future generations what is held. The purpose of this examination, therefore, was to determine the ability of a condemnor to take land previously devoted to public use, and to determine the rights of the condemnee.

The law with respect to the condemnation of publicly held conservation easements is basically the same as the law with respect to the condemnation of any property devoted to public use, because the easement is but one of the many types of interests in real property. For this reason, and because the conservation easement is a relatively new tool with little judicial precedent, the law relating to the condemnation by one public agency of property held by another public agency and devoted to public use was examined. Where opinions exist pertaining to the taking of publicly held conservation easements or the condemnation of conservation easements on public land, they were also included.

The reader will find that the federal government, as the supreme sovereign, will usually be able to take the property devoted to public use that it wants, providing that it compensates the owner thereof. Each state is also a sovereign, but one that is inferior to the federal government. While the state, or any of its agents, cannot usually take federal property, the state usually can, within its jurisdiction, take property previously devoted to public use held by any owner other than the federal government, and without making compensation therefor. A recipient of the state's power of condemnation, such as a municipality, however, does not acquire all of the attributes of a sovereign. Express authorization or authority implied by strict necessity is necessary for such an agent of the state to condemn property previously devoted to public use. The necessity for such a condemnor to make compensation for its taking will also depend upon the express desire of the legislature.

Each state possesses the sovereign power of eminent domain within the territorial limits of its jurisdiction. The state can use its power of eminent domain only to enable the state properly to execute its governmental functions and responsibilities.

A municipality or municipal authority can be granted the right to exercise the power of eminent domain. An authority of a municipality (a municipality is defined in Pennsylvania to be any county, city, town, borough, township or school district), and the municipality itself is an agent of the state, and the extent of its powers is determined by the legislature and is subject to change, repeal or total abolition at the will of the legislature. Furthermore, the power of eminent domain may also be delegated to certain public service corporations.

The federal power of eminent domain extends to lands within the states (or to any lands within the geographical limits of the jurisdiction of the United States) and is not dependent on state authority, nor can the exercise of the power be limited in any manner by the state. The right of eminent domain inheres in the federal government by virtue of its sovereignty and thus it may, regardless of the wishes of a state, acquire the lands it needs within its borders. The fact that the land is already devoted to a public use does not affect or impair this power.

Compensation must be made to public service corporations for real property taken from them by condemnation, but the Constitution of the United States requires no such compensation to be made by a state to a municipality for the taking by condemnation of the real property of a municipality. Indeed, the state is entitled to dictate its own terms for such a taking. The obligation to make compensation, or the lack of such an obligation, frequently will be determined by specific legislation or by the nature of the taking.

A municipality or a public service corporation usually will not be permitted to take by condemnation property belonging to a state, municipality, or public service corporation without either express authority or the necessary implication. A statute authorizing the taking of the property of one political subdivision by another, either expressly or by the necessary implication, will normally preclude any liability for the property taken, but it will not automatically follow. Furthermore, if there is no specific provision as to the necessity to make compensation for the taking by condemnation of property devoted to public use, a public service corporation will be presumed to have such a duty.

The above conclusions all refer to the ability of a state, municipality, or public service corporation to condemn and the requirement of them to make compensation for the taking by condemnation of property devoted to public use. These conclusions are equally applicable to both the taking or impairment of an existing conservation easement and the taking by condemnation of a conservation easement over land devoted to public use, because the conservation easement is an interest in real property.

The federal government can take by condenmation real property that is devoted to public use, and belonging to a state, a political subdivision thereof, or a public service corporation, if it is willing to make just compensation therefor. The ability to take under general statutory authority such property, however, is limited by the requirement that the taking not be arbitrary or capricious. The specific authorization of Congress, and thereby the decision of Congress, to take property devoted to public use for public purposes, however, cannot be challenged as being arbitrary or capricious.

The conservation easement is an interest in real property. Therefore, the ability of the federal government to take by condemnation real property devoted to public use and the necessity to make compensation therefor, as described above, is applicable to both the taking or impairment of an existing conservation easement and the taking by condemnation of a conservation easement over land devoted to public use.

As the public develops greater concern for the preservation of open sapce and the preservation of natural and scenic values, federal, state, and local governments will be looking for a tool to accomplish these goals at low cost. It is to be expected, therefore, that the use of the conservation easement for such purposes will become more commonplace.

SECTION VIII

FEDERAL TAXES AND EASEMENTS

One major uncertainty about the use of easements and other less-than-fee controls has concerned the tax consequences. Believing that people will be far more receptive to these controls if informed about such consequences, the investigators carried out a study of the federal tax laws which covered sales, involuntary sales, and gifts of easements and the resulting federal income, estate, and gift tax implications. Determination of ordinary versus capital income, recognition of gain or loss if capital income, and determination of cost basis were among the matters analyzed. This section presents an abbreviated overview of the conclusions of the study. The reader should refer to the original paper (Hillsberg (B)) listed in the Appendix for a complete exposition of the analysis.

The Treatment of Proceeds from the Sale or Condemnation of Conservation Easements

If the sale or condemnation of a conservation easement would result in a net loss to a taxpayer, it would usually be to his advantage to be able to take an ordinary loss, as opposed to a capital loss. The reason for this is that certain ordinary losses are deductible from ordinary income (usually taxed at higher rates than capital gains), whereas capital losses are, for the most part, deductible in any taxable year only to the extent of capital gains. Deductions from ordinary income, therefore, will often yield greater tax savings than similar deductions from capital gains.

On the other hand, if the sale or condemnation of a conservation easement would result in a net gain, it would often be preferable, and never detrimental, to be able to treat such a gain as a capital gain. The reason for this is that an alternative tax is placed on the excess of long term capital gains (the excess of gains from the sale or exchange of capital assets held for longer than six months over losses from the sale or exchange of capital assets

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held for greater than six months) over net short term capital losses. The familiar maximum 25 percent alternative capital gains rate continues to apply to aggregate long-term capital gains which do not exceed $50,000. A taxpayer need not choose to apply the alternative tax rate if the ordinary tax rates would yield a tax rate lower than 25 percent. The tax rate on net long-term capital gains in excess of this amount will increase in three annual steps, but the combined effect of a 50 percent capital gains deduction and the maximum 70 percent rate on ordinary income of individuals creates a maximum 35 percent rate on capital gains.

Criteria for Treatment as a Capital Transaction

If the criteria for treatment as a capital transaction are met, there can be no election to treat the transaction as other than capital. (One must remember, however, that if net short term capital gains exceeds net long term capital losses, the excess is treated as ordinary income.) In order to receive treatment as a capital transaction, there must either be a sale or exchange of a capital asset, as defined by statute, or an excess of the recognized gains on sales or exchanges of property used in trade or business plus the recognized gains from the involuntary conversion of property used in trade or business and capital assets held for longer than six months over the recognized losses from such sales, exchanges, and conversions.

For purposes of determining whether an easement will qualify as a capital asset or as property used in trade or business, the easement itself must be examined.

Therefore, it first must be determined what property will qualify as a capital asset or as property used in trade or business. Then it must be determined whether or not the easement is itself "property."

To receive treatment as a capital transaction, the sale of a conservation easement must be the sale of "property." Even if the sale of a conservation easement over farmland or other business property is not considered the sale of property used in the trade or business (because the easement itself might not be considered business property even though the underlying property is), it may still be considered the sale of a capital asset if the easement is determined to be property.

A conservation easement may be either affirmative or negative in nature. Affirmative easements, such as the right to enter the land and cut trees that obstruct a view, have long been considered interests in property, the condemnation of which require compensation to be paid.

The nature of negative easements, on the other hand, has until recently been a matter of controversy. The holder of a negative conservation easement is empowered to prevent the owner of the servient land from exercising full powers of ownership over the land subject to the easement. The holder may be empowered to prevent the cutting of trees, the depositing of landfill, the excavation or removal of minerals, and to prevent the construction of new buildings and roads, depending upon the exact terms of the easement. Even though the holder of such easements does not possess affirmative rights that can be exercised on the burdened land, it has been decided that the restrictive or negative easement is an interest in property, the proceeds from the sale of which can be afforded capital gains treatment.

Summary of Conclusions

Under most circumstances, the gain from the sale or condemnation of a conservation easement will be given capital gains treatment. If for any taxable year the net long-term capital gain exceeds the net short-term capital loss, 50 percent of the amount of such excess may be deducted from gross income. Furthermore, at least for a few years more, a special ceiling is put on the tax rates to be applied to the nondeductible 50 percent.

If a conservation easement is condemned, recognized gains or losses will be subject to the netting provisions of the internal revenue code. If, during the taxable year, the recognized gains on sales or exchanges of property used in trade or business, plus the recognized gains from the involuntary conversion of property used in trade or business and capital assets held for more than six months, do not exceed the recognized losses from such sales, there will be an ordinary loss. Planning sales of property used in trade or business, therefore, can have important income tax consequences.

When a conservation easement is sold there will probably be no alternative but to subtract the proceeds of the sale from the original cost basis of that part of the property subject to the easement. Gain will be recognized only to the extent that the proceeds from the sale of the easement exceed the basis of the burdened land. It appears that the Internal Revenue Service will not permit a failure to apportion the original basis for the whole tract between the part to be burdened and the part not to be burdened. It has, however, failed to apportion the basis further, to determine the basis of the easement sold. The problems in determining the basis of a conservation easement are not insurmountable and if the Internal Revenue Service chose to do so, it could reverse its position.

If the sale of a conservation easement is by condemnation or threat thereof, nonrecognition provisions may apply. The position of the Internal Revenue Service, however, indicates that gain from the sale of conservation easements will not be entitled to such treatment. There are many strong arguments for adoption of a rule to the contrary, but even if nonrecognition provisions could be applied the problem of finding qualified replacement property would remain.

If income has accrued but has not been received by a cash basis taxpayer before his death, the gain, if any, that would have been recognized by the deceased, will be taxable to whomever becomes entitled to receive it. Furthermore, the gain retains the same character it would have had in the hands of the deceased. The recipient of the remaining interests in the land would have as his basis the market value of the burdened land at the date of the death of the decedent, or at a date otherwise permitted.

If a gift of a conservation easement is made to a qualified charity, a charitable deduction, equal to the market value of the gift will be permitted from ordinary income. If the value of the easement given is greater than $3,000, or if the gift of the easement causes the total of the gifts made to a recipient, in the same taxable year, to exceed $3,000, a gift tax return must be filed.

The sale or gift of a conservation easement carries with it no special estate tax consequences. Gifts made in contemplation of death continue to be includible in the gross estate. If a taxpayer is in ownership of a conservation easement at his demise, its value will be included in the gross estate. The important provision to remember is that a testamentary gift of a conservation easement to a qualified charity will be deductible from the gross estate.

The federal income tax treatment of the proceeds from the sale or condemnation of conservation easements is complex and currently subject to differing interpretations, because the use of the easement as a tool for conservation is relatively new. It is hoped that the Internal Revenue Service will address itself directly to both the applicability of nonrecognition of gain provisions and the proper basis to which the proceeds from the sale of a conservation easement must be compared. The effectiveness of the use of conservation easements as a tool for conservation cannot fully be determined without such clarifications. However, one can say that, while clarification from the Internal Revenue Service is needed, tax consequences need not be an impediment to use of easements.

PART C. PRIVATE DEVELOPMENT CONSORTIA

Almost a decade ago, one of the Brandywine planners conceived the idea of a development consortium whose members would be the private landowners of a given area. A public land use plan which proposes that substantial amounts of land remain in open space or in very low density uses acts to shift materially the distribution of land values. The development value of areas planned for open space will shift to areas planned for growth. One approach to this outcome of planning is for the public to compensate the owner whose development rights are removed, raising the compensation money by taxation of the landowners granted the right to develop.

It would seem that a far simpler approach, better suited to a people wary of government intervention, is for all landowners in an area to pool their rights to share in the profits from development, whether or not the development occurs on their land. The underlying assumption of this concept is that, prior to the public plan, all landowners had some expectation of rise in land value due to development potential. It is the public plan which shifts these expectations. If all landowners were to share in a land management consortium, with their shares determined by their pre-plan land value expectations, then they would benefit equitably from growth. Public intervention to redistribute the gains would be unnecessary.

Part C examines the feasibility of such concerted, but voluntary, private efforts as a means for realizing certain social objectives, primarily related to the preservation of open space and the sequencing of land development. The specific focus is the legal and financial issues encountered in this type of approach and the organizational forms that it might take.

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SECTION IX

THE FEASIBILITY OF PRIVATE DEVELOPMENT CONSORTIA AS A MEANS OF CONSERVING OPEN SPACE

Over the past decade, there has been a rebirth of interest in the preservation of open space. Studies by scholars and practitioners have urged upon our consciences the need for such preservation and have analyzed the hurdles which must be surmounted if it is to be achieved. The techniques for acquiring and developing land for public parks are comparatively simple and straightforward. Because the land will be fully occupied and used by the public it must be acquired by purchase or condemnation--a simple, if costly step.

When we turn to the question of how to keep extensive areas in the urban fringes and beyond in an essentially natural state, it is quite a different story. Several factors converge to make it complex and difficult. First, the provision in the U. S. Constitution that no property shall be taken for public use without just compensation has been interpreted by the courts to mean the government cannot, under circumstances here relevant, so restrict the uses to which a person's property can be put, that it cannot be used for any reasonably profitable purpose. (See, e.g., Morris County Land Improvement Co. v. Township of Parssipany-Troy Hills, 40 N.J. 539, 193 A.2d 232 (1963).) This means for instance, that a municipality cannot constitutionally prevent an owner of land with special ecological or open space significance from developing it in some way, without compensating him. Thus, a broad guage open space preservation program may well involve a substantial commitment of public funds to compensate those who cannot put their lands to reasonable use.

A second factor is closely related to the first and arises out of the essential values of our system of free enterprise and private property. Owners of extensive open land consider it their right to make as great a speculative profit from it as they can, when they want. Although their hopes may often outpace the realities of the market, they still adhere to a deeply felt ethic which asserts and

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sustains their right to profit from their land holdings. Often, as in the case of middle-aged or elderly farmers, their property is their only marketable asset and their principal security against the economic adversities of old age. Understandably, they react vigorously, on economic grounds alone, against a program which seeks to prevent or destroy appreciation in the value of specific properties by preventing their development.

Closely related to these considerations are the distrust of government and the sanctification of private activities which are widespread in areas on the urban fringe. Because of them, a government program to preserve open space triggers ideological opposition, on the basis that it challenges deeply held, traditional beliefs about the sanctity of private property.

Finally, a program which is premised on public ownership and the use of large areas of interstitial, resource-related or form-giving open space would run into the additional objection that adjacent landowners--those with the present veto power--would be plagued by litterers, picnickers, and vandals.

One of the concepts which planners were not able to develop during the life of the Brandywine project was that of the development corporation as an important instrument in the distribution of profits and losses which may attend an open space program. The central rationale for its use was that landowners whose land was to be kept open by the imposition of conservation easements could take the money received in payment for the easements and invest it in other developable land in the watershed or nearby and thus benefit from a general rise in land values. The private development corporation seemed promising because it met two of the principal objections to an open space program which were mentioned above. This section discusses some of the legal and financial characteristics of the private development consortia approach to the preservation of open space. For the complete analysis, the reader should refer to the report by Krasnowiecki listed in the Appendix.

The Feasibility of Self-financing

One of the first issues raised by the private development consortia approach is the idea or belief that the cost of maintaining open space can be offset by a resulting increase in the return on other land. One may suspect that this is storybook economics which, among other things, accounts for why developers are not rushing to take advantage of optional clustering (where that is offered without substantial increase in density). The assumption of optional clustering is that the market for a given number of single-family homes on one-half acre lots is prepared to offer the same return to land for the one-half acre under the home plus the one-half acre included in the open space, as the market for the same number of homes is prepared to offer for one-acre lots (without the open space). In certain markets, with unusual preferences, that may be true. By and large, however, the single-family home market will not sustain as high a return to land when it is offered as separate open space as it will sustain for the same land when provided around the home. If this analogy holds, then there is a serious problem with the idea that development is capable of carrying the cost of the conservation easements, let alone that it will do so voluntarily, unless some form of bonus-system is in effect (either overtly or covertly).

Although the case in favor of requiring cash contributions for various public services and improvements has been ably argued, it is questionable whether the courts would react favorably to any overt scheme for charging the costs of conservation easements to new development. Even the most ardent proponents of the exaction would agree that it must be limited to services and facilities needed by the new development. Furthermore, it could be argued that the distributive effects of direct exactions should be compared with other alternative methods of distributing the costs of social welfare, particularly taxation.

Pooling--Unitization

A second related issue is the feasibility of a scheme by which those who are allowed to develop must compensate those who are denied the right to do so. Although this type of arrangement has been upheld in the utilization of oil resources, there is some difficulty with applying the same reasoning to development value. It is hard to demonstrate that development on one parcel always withdraws from the development potential of some other parcel--and particularly that it does so within the regulated area.

In order to establish such a nexus for development worth, the community would have to put a ceiling on total development, expressing it in units which are transferable from one kind of development to another (at least within the broad categories); then allocate the units to the various parcels on some "fair" basis; and then provide that private reallocation can occur in accordance with stated rules (or in accordance with stated standards for discretionary action by an appropriate agency--a more likely approach). There are so many technical problems with the idea as to render it at best dubious. What should be the principle of initial allocation? What units of measurement should be used? How can more units be pumped into the system? Can private reallocation occur as of right or, if not, what standards should be used? How can the community defend those standards in view of the decisions made upon the original allocation?

Easements in Exchange for an Equity Participation

If a private development corporation will not voluntarily invest in conservation, so that some kind of bonus or some kind of compulsory pooling system will have to be employed, the question arises whether a private development corporation is an appropriate vehicle in the first place. Perhaps the thought is that instead of contributing cash towards the acquisition of easements by a public authority, the corporation might be prepared to offer an equity participation (preferred or common stock) to the landowners in exchange for the easements. This proposal, however, comes up against a number of difficulties, the principal one of which is that although a conservation easement has value to the landowner who grants it, it does not have any clearly recognizable value to the grantee. The only grantee that can put a value on the easement is the public. Accordingly, if the public desires that the value it puts on the easement be paid out of the profits of development, there are two honest courses open to it; (a) it should secure from the state the right to tax new development for this purpose, or, alternatively, tax everyone (a preferable alternative) ; or (b) secure from the state the right to get into the development business itself so that it can plow back the profits (if any) into conservation.

The Private, For Profit, Development Corporation Approach

From the foregoing discussion it may be concluded that the private investor is unlikely to purchase the right to prevent development on land belonging to others merely on the theory that his land will become more valuable for development, unless this nexus is artificially created by the public regulatory system. Put it another way: there is no indication that the housing producer or consumer is prepared to pay for non-usuable open space or for non-"exclusive" (i.e. public) usable open space, unless this cost is forced upon him by employing scarcity as an instrument of enlightened public policy. What is true of the housing producer and consumer is even truer of commerce and industry. Thus, the private development corporation idea will work only within an overall regulatory scheme in which industrial and commercial development permission and residential density increases are awarded in exchange for the acquisition of open space interests on other land within the scheme.

Even if such a scheme could be established as a practical matter, its validity is subject to question. Although there are no judicial decisions directly in point, it is generally agreed that bonus or incentive zoning schemes have little to fear from the courts if the bonus is rationally related to the condition that is exacted from the developer. Thus the courts are not likely to disapprove a zoning scheme where density increases are granted in exchange for open space that is usable by the residents of the development in question. It is a different matter if the open space is not usable by the residents of the development (i.e. is non-contiguous and remote). While a requirement that developers contribute cash towards the acquisition of public parks has been upheld where reasonable and authorized by state statute, the implication is that such a requirement can only be applied where the basic rule is that the developer must provide land for parks and playgrounds on his site and the cash contribution is required only in cases where the size of the development or the characteristics of the site do not justify the application of that basic rule.

One can expect the courts to react very differently when the basic rule is to call for cash contributions, particularly when those are based on a sliding (density bonus) scale and the funds are proposed to be used for the acquisition of conservation easements (unusable open space) as well as for usable open space. Such a scheme might impress the court as nothing more than a thinly veiled excuse for levying a special tax against new development--a tax which generally is not presently authorized. There is, in addition, the powerful disincentives associated with the "prisoner's dilemma" and "domino" theories. A plan can be worked out in which the rights purchased or donated by the individual landowners are held in escrow until all of the proposed rights have been assembled in a given area. Failing this the rights would be released to the original owners. This approach, however, works a powerful encouragement to the holdout. It is doubtful that the acquisition plan can be successful unless the assembling authority has the power of compulsory acquisition.

The Nonprofit Development Corporation

The nonprofit corporation provides an extremely versatile vehicle for the accomplishment of various public purposes and it may well be thought that it can provide the vehicle for applying the profits of development to a broad conservation program. One important advantage of the nonprofit corporation is the broad range of choices that it offers for structuring control and internal governance. For example, it could be structured to include all the residents of the area in its membership with management elected on a broad basis. At the other extreme the nonprofit format permits a completely nonelective management, self-perpetuating through appointment by its existing board, or directed from without, through appointment by a designated person or organization, including appointment by a local government body.

To make any impression in terms of conservation, however, the nonprofit corporation would have to maintain a very substantial competitive advantage over private developers in the area. This calls for a very large initial capitalization. The corporation will need a substantial amount of land for development and a substantial amount of cash to start up. Here the nonprofit corporation may find that its resources are very limited. For its start-up capital it will have to rely on gifts from private sources and grants from governmental sources. Gifts and contributions from private individuals and organizations are an unlikely source of its initial capitalization unless they can be qualified as charitable contributions for tax purposes.

If the corporation's declared purpose is to finance conservation out of extensive development activities, it is doubtful that it could qualify as charity in the first place. Assuming that this is not a disqualifying factor, however, the corporation would be hard put to avoid classification as a private foundation, which would result in severe limitations on its development activities. To escape private foundation status, the corporation would have to establish (under Pennsylvania law) that a substantial portion (one-third) of its income would be received from sources other than development activity, such as government or general public support.

When all is said and done, the fundamental dilemma of the nonprofit corporation approach is this: to succeed at all, the corporation would have to be highly competitive with private developers in the area. So long as the corporation does not occupy a legitimate status as a public agency, any attempt to favor it (through zoning concessions) will draw legal challenges from private developers and is probably indefensible legally. The corporation could legitimately gain an advantage over private developers under an "incentive" or "bonus" system of zoning applicable to all developers alike, because unlike private developers, the corporation would not be concerned about its profits.

SECTION X

LEGAL AND FINANCIAL ASPECTS OF LAND DEVELOPMENT CORPORATIONS

The basic assumption underlying the development corporation idea is that it is initiated by the individual landowners themselves, as opposed to a single developer who assembles the tracts of property needed for a particular project. It is also assumed that the amount of land controlled by the group is of significant size, so that the possibility of preservation of lands in their natural state is not precluded.

Section IX referred to this type of venture as a "development corporation." Yet the first question to be answered is whether the corporate form is indeed the wisest choice for the group. Although the decision always depends on the needs of the individual members and the objectives of the group as a whole, this analysis points out that for most situations, the corporate form is not the best choice.

Once such an organization is established, two critical action paths, which are the focus of this section, crystalize. One requires that the land to be used in the venture is either directly held, or within the present or future control of the development group. The present and future transfers of rights in land, including less-than-fee rights such as easements, can take a variety of forms. It will be argued that the tax consequences of these various forms will be determinative of the choice of a particular means of achieving control through transfer of rights in land.

The second action path requires the acquisition of sufficient funding to initiate the project to any significant extent. This section will discuss the forms this financing can take and the controls that may have to be sacrificed in order to obtain the sums needed.

The material covered in this section is of necessity a simplified overview of an extremely large area of the law.

The exposition here is designed primarily to acquaint the uninitiated with some of the subtleties of what otherwise might seem to be a simple choice. For a more complete analysis the reader should refer to the publication by Pollak listed in the Appendix.

The Development Corporation Mechanism: A Summary

A corporation, because it is a separate entity, is a useful means of dissociating one's personal activities and liabilities from that of a business enterprise. In addition, it has a life of its own, independent of the mortality or liquidity of its owners. It is hampered by a tax structure that imposes double taxation on income, does not maintain the character of income when it is passed on to shareholders, and does not afford personal deductions for losses of the corporation. Means are available to minimize the tax liability established as a result of this structure. These include compensation for services rendered by stockholders, interest payments on shareholder loans, and various fringe benefits to employee shareholders. Where the corporate tax is less than the individual tax or where estate considerations are of major importance, the corporate form is an acceptable choice.

However, in any attempt to maximize tax avoidance while taking advantage of the corporate structure, the dangers inherent in concepts such as unreasonable compensation, accumulation of income, thin incorporation, personal holding companies, and collapsible corporation, should be carefully examined such that financial manipulation of the corporation will be tailored to avoid these penalties.

To a land development group, the corporate structure may be attractive if only a few landowners are involved, and if all of them are willing to accept less than maximum immediate returns in favor of estate planning objectives or deferred income possibilities. (Other advantages may be to a great extent obtainable in other business forms.) This would require an active corporation which could and would expand, either on the same site or on others, in order to accumulate income legally and avoid taxable distributions.

However, where larger numbers of landowners are involved, or different motivations drive the few who participate, the corporate form by itself is unlikely to be the most desirable means of doing business, primarily because of the tax structure and resulting lower returns of investment.

The Partnership Approach

The partnership offers a land development group the tax advantages available through direct taxation of income to partners without any intermediate business entity taxes. Income and deductions maintain their character when computed in the partner's return and losses may currently be utilized. During the early years of a land development group, these advantages make it especially attractive to have losses available to offset income from other sources.

For the development group in need of additional land assembly capital, the partnership form should not hinder the accumulation of such funding, and may in fact prove more acceptable, when in limited partnership form, to an investor seeking a limited liability, profit-making interest in the venture.

The limited partnership offers additional advantages by effectively minimizing the disadvantages inherent in the partnership form--unlimited liability, lack of centralized management, no continuity of life, and limited transferability of interest.

Where a partnership is chosen as a preferred mode of doing business, the choice is not immutable. Dissolution can be achieved (without recognizing gain), and reconstitution as a corporation or other business entity can easily be arranged. In addition, upon dissolution the distribution can be made so as to best serve the individual tax needs of the partners, i.e. where income is currently high, property may be handed out; where income is at an acceptable level, cash may be substituted.

The Choice of Organizational Form

In deciding on the choice of business entity, the landowner group must be able to articulate its own objectives and goals, not only for the venture as a whole, but for each landowner individually as well. Is profit to be the primary goal? Are immediate returns more desirable than building up the value of the investment? Should individual risk be eliminated as a factor? Consideration of these and other issues should lead the group properly to establish its priorities.

Once these priorities are set, the choice of form can be narrowed considerably. For example, the corporate form offers security, investment potential and a lower tax bracket, coupled with a double tax on dividends and a variety of penalties for those unsuccessful efforts to minimize the effects of the double tax. However, so long as a steady income is achieved and expansion maintained as a continuing policy, negligible distributions will be tolerated, and a valuable investment built up.

If the corporate form is desired, the use of multiple corporations should be considered as a means of further splitting income and expenses, manipulating debt and equity interests, and achieving a more or less harmonious existence with the income tax.

When losses are expected, or where the tax shelters available from depreciation deductions are desired for personal use, the partnership form is preferable. The tax aspects become especially attractive when matched up with the near-corporate characteristics of a limited partnership.

The other alternatives, such as real estate investment trusts, are useful only in very narrow situations such as when active development is eschewed and only holding operations are contemplated.

Although this section was designed to outline the advantages and risks of various business forms to participating large landowners, the needs of two other groups should be mentioned: smaller landowners whose property represents their only significant assets, and corporate or institutional investors.

To the small landowners, the factors in choice of entity are not very different from those of larger landowners. It will depend on their desire for immediate security, or future estate; their desire to participate as shareholders rather than partners in terms of risk, transferability and control; and their choice of transfer strategy for their property. Oftentimes their own personal needs may conflict with those of a corporation, i.e. immediate cash needs versus limited liquid corporate assets. As a result, the choice of business entity may not be as important a factor in their participation as the means devised to transfer control of their property to the development group.

To the corporate or institutional investor, the form of development group entity is not likely to be a major consideration. Lenders and participants have been able to work amenably with virtually all business forms; far more important are the prospects for profit and the degree of control that can be wrested from the developer.

Income Tax Aspects of Transfer of Rights in Land

Fee Transfers of Land

If we were to summarize the various forms of fee transfer likely to take place between the development group and landowners, the most accurate statement would be that the form used is more likely to reflect the needs and demands of the vendor than the tax savings available through one format or another. Where the landowner is willing to sell yet wants no part of the project, several choices are available: either an outright purchase is arranged if he wants to leave the area as well, a sale with subsequent leaseback is arranged if he wants to stay and the land is not slated for change in use, or an exchange is arranged if he wants to stay but not on property slated for development. [Naturally, if he doesn't want to sell or otherwise dispose of his land, strategy must be formulated to deal with the situation. Less-than-fee transfers are possible with some parcels; others, unfortunately may have to be left out of the plan.]

Where the landowner does not use the tract in his trade or business, his options are limited in that a lease is not advantageous to his tax position. In such cases less-than-fee acquisition may be more desirable.

The availability of capital gains treatment insures a reduction on the tax likely to fall on a site when later developed, by inserting the development group as the vehicle to recognize gain at the lower rate yet maintaining control and a share of the potential future profit from that development when it finally occurs.

Where sales are completed, taxation may be spread or even reduced by use of installments or deferring payments.

Tax-free exchanges are possible when a residence is involved, when properties are exchanged for one another, or when property is exchanged for partnership interests or controlled corporation shares. The advantage is that no gain is recognized and the income tax may be avoided entirely by passing on the property through an estate. In some instances a less quantifiable gain may result by obtaining a new home or property, even further out in the desirable quiet countryside or woods than before.

Each of these tax and non-tax aspects of that vital first transfer of fee should be pointed out to the vendor and used as a means of achieving the necessary assemblage of land by the group. What it does with the land once it acquires it depends on a variety of factors, the chief one being its intended use.

It should be noted that the tax result to the recipient of the fee--the development group--was not discussed in any detail above. In any of the transactions described, primary emphasis will be on the tax results of the transfer to the landowner, who is, after all, the possessor of the desired item of commerce; for the group cash flow results may be more significant than tax savings. There is usually a premium placed on available cash during the early stages of a project, and whatever device reduces the immediate cash outlay least is the preferred one. The development group will in most cases have a readily determinable basis in the property acquired--the major tax-related result. Exchanges for cash, securities or land do not usually result in recognizable gain. A loss that does occur would either be deductible immediately by the partners, or be offset by the corporation.

Less Than Fee Acquisition

As a means of achieving tax benefits, the sale of rights or easements results in reduced cash outlays or perhaps only transfer of shares for the development group, yet without adding to the taxable income of the vendor. The group achieves control without unnecessary expenditures of funds. The landowner retains the use of the land, has a greater guarantee of privacy, and perhaps a say in the future use of both the affected tract and its neighbors. Although it reduces planning flexibility by limiting the options for development, it is a useful device for maintaining open areas and for assembling land for future rental use, either commercial, industrial, or residential.

The Property Tax

In determining policy with respect to property taxes, the relative advantages accruable to (a) contractual public arrangements for maintaining open space, on one hand, and (b) tax deductions available through continued private holding of the land on the other, must be examined in order to achieve the most financially favorable position. Where land is not slated for development, contracts with public agencies will provide the desired protection from increased assessments, without the attendant loss of privacy involved in outright donations (another possible way of avoiding the tax entirely). Where development is a part of future land use for parcels presently open, change in assessment as a result of private arrangements is not likely to take place in view of the administrative difficulties involved. However, property taxes should be apportioned to reflect the dual ownership; in effect this serves to reduce the landowner's tax liabilities, and provides the development group with a sometimes heavy, but always deductible carrying cost.

Financing Characteristics

The outlook for obtaining initial financing of the development group depends very much on both its present needs and future outlook. Unfortunately, far too often this boils down to: the less you need cash, the more likely you are to get it. For example, most developers bear the initial burden of funding to assemble land, yet to lending institutions this is the least attractive destination for their funds, especially if the developer has no plans for immediate construction.

Modern real estate financing techniques are less likely to be straight mortgage arrangements, with set interest rates, than various forms of equity participation. In part, equity participation is a method of avoiding usury problems, but, perhaps more important to the lending institution, this serves as the only hedge a long-term lender has against inflation. The forms these arrangements take vary, and a brief description of the more popular ones will serve to apprise the development group of what it may have to face in order to get sufficient funding.

1. Contingent Interest: This is little more than a form of additional compensation above that indicated by the interest rate. Various types of contingent interest have been devised, including: percentage of gross income, percentage of gross income in excess of specified percentage, percentage of gross income in excess of specified dollar amount, percentage of average rents, and percentage of net income.

2. Mortgagee's Participation--Ownership Interest:

Traditionally this involves the lender accepting stock ownership in the corporation, although it can just as easily result in a partnership, either as a general partner in a joint venture, or as a limited partner.

3. Sale-Leaseback: The investor purchases the land from the developer and then leases it back to him at a fixed rent. A contingent interest such as percentage of income may be thrown in, but the primary advantage to the lender is that the appreciated value of the land accrues to him and not to the developer. Not surprisingly, this form has not been used in larger, riskier projects, where appreciation is the most secure form of profit.

4. Sale Buyback: This is only a variation on a straight mortgage in that the investor purchases the land for cash from the developer and then sells it back to him on long-term installments; it does not hide added profit to the lender.

5. "Front-Money" Deal: Instead of taking merely a partial equity interest in the project, the lender may assume all fiscal responsibilities, leaving the actual plan effectuation to the developer, and perhaps half the profit as well. An example of this type of finacing is the creation of corporate subsidiaries to develop land with funds supplied by the parent organization.

6. Sales to "Subdevelopers": A final approach, apparently gaining in popularity, involves sales of parcels to smaller entrepreneurs to develop as they see fit within the guidelines set forth by the prime developer of the project.

The key to each of these formats is that in exchange for foregoing higher interest rates, the investor is likely to ask for some share of the equity portion of the venture, or for some access to future profits of the project should it succeed. In planning for outside financial participation, the development group must be aware of the likely participation demand to be placed upon them by the potential investor. They must be prepared to give up some measure of control for this support. However, the stronger their initial position is, i.e. the less they seem to (or in fact do) need the money, the less they will have to give up to secure funding. If no further land purchases are necessary, the "ultimate position," (short of self-funding to any extent), will have been achieved. Financing initial infrastructural and site improvement costs will be expensive but far easier to obtain once the land is assembled in a neat package. Thereafter, the particular characteristics of the site and of the proposed plan will determine the size and cost of financing.

Conclusion

In determining the economic feasibility of the proposal, data have been gathered on the assumption that development that does occur will most resemble open space cluster communities, in view of the substantial desire of the landowners to preserve as much of the land in open or natural use as is possible. It might be added that in putting such a project together, the amount of land deemed necessary to properly protect a significant sector of land may require, and perhaps best be realized by, a development that begins to approach the scale of a "new town."

It is impossible to conclude unequivocally that a project of this scope is feasible and definitely will be profitable; prerequisites for success are different at every site, and each site must be tailored to its own dimensions and peculiarities. Obviously this leaves a great deal of room for error. What can be said, and perhaps only rather generally, is that, based on past experience, indications are that development of open space communities can be highly profitable, although extending and enlarging the size of the project may significantly increase the risks and reduce the profit to a rather tenuous, but still positive level. Only by analyzing the affected properties individually can more accurate, and perhaps more optimistic, forecasts be presented.

SECTION XI

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The private development consortium research was the work of Jan Krasnowiecki and Mark Pollak.

SECTION XII

APPENDIX

Publications

Ball, Duane E., "Open Space Preservation: Some Efforts by State Governments," Institute for Environmental Studies, Philadelphia, Pa., November 1970.

Benedict, Judith and Wasserman, Cheryl, "The Brandywine: Five Years After," Institute for Environmental Studies, Philadelphia, Pa., February 1972.

Hillsberg, Jon G. (A) "The Condemnation of Real Property Previously Devoted to Public Use with the Focus on Conservation Easements and Pennsylvania," Institute for Environmental Studies, Philadelphia, Pa., September 1970.

Hillsberg, Jon G. (B) "The Federal Income, Estate, and Gift Tax Consequences of the Sale or Gift of a Conservation Easement," Institute for Environmental Studies, Philadelphia, Pa., September 1970.

Strong, Ann L. and Keene, John C., "The Brandywine Plan," Journal of the American Institute of Planners, Vol. XXXVI, January 1970.

Krasnowiecki, Jan Z., "The Feasibility of the Private Development Corporation as a Means of Conserving Open Space," Institute for Environmental Studies, Philadelphia, Pa., April 1971.

Pollak, Mark, "Legal and Financial Aspects of Land Development: The Landowner as Developer," Institute for Environmental Studies, Philadelphia, Pa., December 1971.

Slade, Sondra K., "Conservation and Flooding Easements: A Case Study," Institute for Environmental Studies, Philadelphia, Pa., December 1970.

Strong, Ann L., "Flood Plain Regulation," Institute for Environmental Studies, Philadelphia, Pa., December 1971.

Preceding page blank

Strong, Ann L., "Crisis Mentality and the Deteriorating Environment," in Values and Politics in Shaping America's Environment, Daedalus, Cambridge, Mass. 1970.

Strong, Ann L., with Coughlin, Robert E., Keene, J. C., Leopold, Luna B., Stevens, Benjamin H., et al, The Plan and Program for the Brandywine, Institute for Environmental Studies, University of Pennsylvania, Philadelphia, Pa., October 1968.

Strong, Ann L., with Coughlin, Robert E., Keene, John C., and Stevens, Benjamin H., "The Brandywine Plan," Chester County Water Resources Authority, West Chester, Pa., April 1968.

Strong, Ann L. and Keene, John C., Brandywine Revisited, (anticipated publication, 1973).

"Urban Sprawl vs. Planned Growth," 16 mm movie, 21-1/2 minutes, Stuart Finley, for the Institute for Environmental Studies, Philadelphia, Pa. 1968.

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